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JENNIE ATCHLEY reports in *A. B. J.* finding laying workers at work in a hive with a super-annuated queen.

NEW MEANS for killing skunks are diligently brought forward. Are the poor things to be utterly exterminated?

TO PEEL AN ORANGE. After cutting the rind in six sections, don't commence at the blossom end. Try the stem end.

PHIN'S DICTIONARY of Apiculture has my increased respect. He had largely virgin soil to work on, and he made a good job.

THE LAYENS PLAN, that Doolittle asks about on p. 151, gives the bees in the spring a hive so big they can't fill it, then lets them alone till fall.

SWARMING seems to interest Wisconsin beekeepers, as the program for State convention shows 5 topics out of 12 relating to it. I'd like to be there.

RAMBLER, can't you get the Californians to make that standard frame just  $\frac{1}{8}$  inch longer so we can all have the same standard? [Yes, yes. —ED.]

WILDER GRAHAME hits the nail very squarely on the head in that talk about giving swarms a chance to alight conveniently for the beekeeper (p. 149).

LONGEVITY as a reason for such great difference in the working of two colonies has another advocate in *A. B. J.*, in Chas. H. Thies. He gives a strong illustration.

SALT WON'T CURE the bee-paralysis they have in Texas, says L. B. Smith, in *A. B. J.*, and he thinks that disease in the last three years has killed two-thirds of the bees.

"ALL OF GLEANINGS, except the part belonging exclusively to A. I. Root, comes with enlarged print. Quite an improvement," says

Mrs. Hallenbeck, in *Progressive*, and even the editor of *Progressive* speaks of the new type.

GALLUP says, *A. B. J.*, queens mailed when just beginning to lay are not injured; and when laying heavily a journey in the mails impairs their prolificness but not their longevity.

HOW MUCH HONEY is used to raise a pound of bees? is a query in *A. B. J.* One man guesses a pound, another 20, and the rest "don't know." Some one ought to find out. [Doctor, suppose you try the experiment next summer, and report.—ED.]

FOUNDATION, if sheeted as carefully as for the rolls, can be made just as thin and even on the press as by the rolls, says E. T. Flanagan, in *Progressive*. But he adds that it takes care and skill to do it, and in all that I used I never saw any such.

ERNEST SUGGESTS, p. 165, that a clear light saves the eyes. Right. Not that the quality of the light's better, but there's more of it. And don't forget that you can get more light by being nearer the lamp. At 2 feet the light is four times as strong as at 4 feet.

E. A. DODGE thinks there are enough other insects to fertilize fruit-blossoms without bees. He says, "Take a lantern and visit a plum-orchard about 9 at night, and you will see moths enough to fertilize all the trees in Nebraska in a single night." Do night-moths do that sort of thing?

"WE TRANSFERRED the bees from a wagon-load of box hives a few days ago, and by careful test we found the combs to average, as nearly as we could get at it,  $1\frac{1}{8}$  inches from center to center."—Mrs. Atchley, in *A. B. J.* Do bees voluntarily build combs as close in cold as in hot climates?

EDITOR YORK is stirring up his readers with the report of a man who regularly retails extracted honey at 24 cts., and H. D. Cutting is selling an extra article of extracted at 16, while plenty common can be had at 7. There's lots in knowing how to sell, and if all extracted

was like Cutting's extra, the price would hardly be so low.

R. WILKINS writes, "Bees' eyes not accommodating themselves to strong and weak light seems to account for many of my bees in bright days falling wounded to the ground from bumping their heads against the south side of my white bee-house, as great numbers of them have to fly close by it."

DR. JESSE OREN, A. B. J., recommends burning sulphur in the cellar a week or so before taking in bees for winter. It helps to keep combs dry, and free from mold, and the family from fever, diphtheria, etc. A heavy dose after taking bees out is a good thing. I've practiced it, and like it much.

A CORRESPONDENT is deterred from making a fire in his cellar because I said occasional fires didn't work in practice as well as in theory. Please emphasize "occasional." A *constant* fire works better for me. Some will need fire less constantly, some still less, and so on to those who never need any.

CLIPPING QUEENS has a majority in its favor among those replying in A. B. J. Rather strangely, most who favor it see no disadvantages, and the others are equally blind to any advantages. Disadvantages named: Trouble and barbarity of clipping, danger of supersedure or loss of queen. Advantages: Easier to keep age of queen; saves watching, time, care, and labor, at swarming; less danger of losing both swarm and queen.

WHAT PREPARATION of pollen does W. S. Fultz mean on p. 127, that bees can not make and man can? Certainly man doesn't prepare the pollen out in the orchard. And I supposed that the ripe grains of pollen floating through the air, and adhering to various parts of the bee's body, needed no preparation. Surely he can't suppose that the contents of the pollen-basket are meant. [You are quite right, Dr. M. Hadn't thought of that before.—ED.]

IF THE PRACTICE of rendering combs with acid becomes universal, the quality of the wax will be greatly lowered, and bees will not accept comb foundation made from such wax as readily as when it retains the bee and honey smell.—C. P. Dadant, in A. B. J. [We can see no difference, as we do it. We use less than a pint of acid for 500 lbs. of wax, and by our plan we recover every particle of the acid. Its specific gravity is so much greater than wax that it settles to the bottom of the water before the wax cools. Chemical tests too show that there is no sulphuric acid left in the wax. Our friend C. P. doubtless alludes to those who use too much acid, or use it improperly. If so, we agree with him.—ED.]

[You see we have started the footnote feature to Straws. What will the doctor do when he sees we have the "last say"?—ED.]



### THE CALIFORNIA STATE MEETING.

THE GREATEST BEE-COUNTRY IN THE WORLD;  
THE DETECTION OF GLUCOSE BY THE  
TASTE.

By Prof. A. J. Cook.

[On page 145 we have already given a report of the California State Bee-keepers' Association; but this one by Prof. Cook presents new phases of the meeting, that will be no repetition.—ED.]

Dear Mr. Editor:—I need not tell you that the California State Bee-keepers' Association was a very interesting one. The members are very intelligent, wide-awake men, and there were even more of these present than there were two years ago when you and I met with the Association. The hall in the Chamber of Commerce was crowded from first to last with eager, successful bee-keepers. I think I never attended any convention where the discussions were more interesting. Some of the papers, like the President's Address, and especially the paper by Mr. Woodbury, were of unusual interest. Three topics elicited more consideration than any others, and the points developed will interest the readers of GLEANINGS: "The Bee-keeping Interest of California; the Relation of Apiculture and Pomology, and the Matter of Marketing." I will endeavor to give you in three brief papers the substance of the discussions in each of these directions.

I stated in substance the following in a paper which I read on the first evening: That I was told by one of the best-informed bee-keepers of Southern California that more than half of the seasons in California are excellent; that he had never had to feed his bees; though one season, before he commenced keeping bees, feeding was necessary to save the bees, and that from 300 to 500 lbs. of honey were often secured from each colony in the apiary; and that in good seasons, when the rain exceeded 15 inches, it was practically impossible to overstock a locality. I asked for exact facts, that we might publish the truth to the world; and if any thing like the above was true, establish the fact that Southern California is the most wonderful bee-locality in the world. The inquiry brought out the records from several of the oldest reliable bee-keepers, when it was found that less than one-third of the seasons for twenty years had been poor; that other years the bees in large apiaries had averaged from 250 to 300 lbs. per colony, and that in most of the poor years the bees had given some surplus, while they had, with the exception of one season, gathered enough to be self-supporting. It also appeared, from ample authority, that, in good seasons, it was almost impossible to overstock a locality. At least, hundreds of colonies had been kept



in one apiary, and had gathered 300 lbs. of honey per colony, spring count. This certainly establishes the fact that California is the banner apiarian State of our country, if not the best locality for bees in the world.

The experiment of mixing glucose  $\frac{1}{2}$ ,  $\frac{1}{8}$ , and  $\frac{1}{4}$  with honey, and allowing the bee-keepers' present to taste of each and of pure honey, resulted just as it did in Michigan a year ago when I prepared similar samples. Every one could detect the adulteration. Such adulteration is openly practiced by the dealers in the large cities, and is a rascally fraud. It crowds the market with the spurious article, which is so inferior that it would surely lessen the demand for honey. Such spurious stuff leaves a disagreeable taste in the mouth, that would surely take from me all desire for honey if I were to eat it, even though I did suspect its real nature. California bee-keepers are in earnest, and are bound to secure state and national laws looking to the suppression of this nefarious practice, and they are of one mind regarding the advisability and necessity of seeing that such laws are enforced. Resolutions were passed, and committees appointed, in hopes that speedy legislation, both state and national, may be secured, which will make it very dangerous to prosecute any such calling as that of adulterating honey and selling the product as the genuine article. It was resolved, also, to exclude any person from the society who should engage in such adulteration. Without doubt this is right and wise. Bee-keepers everywhere should unite to strike down this terrible enemy.

Claremont, Cal., Feb. 13.

[Prof. Cook has been very busy for the past year or so preparing to leave his old college at Lansing, Michigan, moving, and finally getting settled in his new home in that land of flowers. He writes us that the climate and people are delightful. He is much pleased with his new work and the opportunities before him. Now that he has got out of his rush, we shall hear from him as before, we hope. The article above is among the first at hand, and we are sure it will be read with pleasure. Observe that he verifies again the position we have taken, that glucose—the commercial article—can be successfully detected by the taste.—ED.]

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### THE USE OF BEE-ESCAPES.

F THEIR ADVANTAGES AND DISADVANTAGES IN CALIFORNIA.

By Rambler.

To use or not to use the bee-escape is a question that seems to be causing a little ripple on the otherwise placid surface of the bee-keeping interests. There are not a few that look upon the little tin instrument as an innovation, and openly declare they will have nothing to do

with it. This view smacks something of set notions, and, if adopted by all, would shelve many worthy inventions.

My experience with the escape is confined almost wholly to their use in this State, using them here for two seasons; and I would say that my use of them so far hardly fits me to write of their advantages or disadvantages, for I have much to learn yet in their use. There are those who can use two or three escapes two or three times on two or three hives, and then write learnedly of their advantages, leaving out a great many of the hitches and obstacles to entire success. I propose, therefore, in giving my experience, to relate all sides of it so far as it goes, and tell the rest after further experience.

I have used the escape exclusively for obtaining extracted honey. If I were to remove comb honey I think another method would be preferable in this country; still, I would give the escape a thorough trial in that case.

To get rid of the disagreeable labor of brushing off bees, and exposing combs that have just been through the extractor, is a desideratum sought for by all bee-keepers who extract honey; and if the escape will enable us to accomplish it, or even to make the work more pleasant, then we want the little tin instrument.

My experience teaches me that the escape is a useless article unless used in connection with the queen-excluding honey-board. If we do not use the queen-excluder, there will be more or less brood in the extracting-super; and where there is even a small amount of brood, the bees will not leave it; while, if there is much brood and a queen, scarcely a bee will go through the escape.

There is another hitch in the smooth working of the escape: If there are many young bees, even above the queen-excluder, they are not world-wise enough to use the escape, and are found clustered upon two or three combs, just where we do not want them.

My method of manipulation has been to give the queen unlimited room up to the first or even to the middle of May; using *two* extracting-supers, with frames the same size as the brood-combs. If the queen is prolific, not only the brood-chamber but the super above will be well filled with brood; after the first of May the queen-excluder is put to service and placed upon the brood-chamber with the two extracting-supers above. In order to get the queen in the proper place—the brood-chamber—the combs are manipulated: if the outside combs in the brood-chamber have honey and pollen, they are removed; and larval brood from the super is put in their place. If the honey has been coming in freely, it is possible that the second super is well filled with honey, and ready to extract. If the escape is put under this super it works to a charm, except now and then a cluster of the aforesaid young bees; but if the escape is put

under the super above the brood-chamber: or if only this super is used, I find that about one queen in six will get above the excluder, and the escape fails to operate. The remedy here is to exercise greater care in rearing large queens.

My plan of manipulation is to take the escapes on the wheelbarrow, about 4 or 5 o'clock in the afternoon, and go to the hives that need extracting, and tilt the super forward; slip the escape-board under as far as it will go, then pull the super back upon the escape-board, shoving all forward on the hive. It can be quickly done, and but few bees crushed if a little smoke is used when tilting the super.

When extracting from a hive with only one super it is necessary to have an extra super of empty combs to put under the one we take away; for it would cause a loss of honey to crowd the bees into the brood-chamber and leave them there while the super is being extracted. With two supers, however, there is room for the bees and a place to store honey if one of the supers is removed. Having placed the escapes in the evening, the first work before sunrise the next morning is to take the wheelbarrow and commence wheeling in the supers. I have 34 escapes; and were it not for the aforesaid small queens getting into the supers I could wheel in 30 of them without using veil or smoke; but with those troublesome queens, I have taken in 25; the rest were left until after breakfast, and were brought in by using smoker, veil, and brush. The 34 supers are piled up in the extracting-room, and are easily cleaned up before one o'clock. This season, to give the escapes a more extensive trial, they will be increased to 50.

I find one very decided advantage in the use of the escape is, that the outdoor work is all done in the morning and evening, and the indoor work in the shade during the heat of the day, which is no small item in this climate, where the mercury has a way of rushing up to 100° and over. I set opposite this a disadvantage. If the bees run off the combs in the early evening, the cool nights here have an effect upon the honey, and it requires more whirling of the extractor to clean the combs. I also find that, if we try to remedy this by putting the escape on during the day time, the bees will not leave the combs so readily as they do in the night.

There are several points in the use of the escape that I need to test before I shall unequivocally adopt them; but upon one point I am fully decided; i. e., their highest success will be with the shallow divisible brood-chamber. It is also manifest that the escape is more of a help to the person who works his apiary alone than to those who work from apiary to apiary with a crew of men; in the latter case it might be a nuisance.

When some of our leading producers, like Mr. France in the East, and Mr. Corey in the far West, refuse to use them, it will not do to

attribute it to old-fogyism, but to the fact that these veterans are used to judging the value of new appliances by their apparent usefulness. If this point is not *startlingly* apparent, they want nothing to do with it.

The case then remains about like this: There is certainly more or less manipulation with the escape. Shall we perform this manipulation, or shall we continue to brush bees? I shall continue another season, at least, with the escape. I have tried to give an impartial view of the situation, hoping the result will be an improvement in the escape that will be *startlingly* apparent.

### DR. JOHN DZIERZON.

AN INTERESTING SKETCH OF A GREAT MAN.

*By Karl Rudolph Mathey.*

Dr. John Dzierzon was born on the 16th of January, 1811, in Lowkowitz, near Kreuzburg, Upper Silesia, where his parents were freeholders. He was an ardent lover of Nature's works from his youth up, and as a boy he busied himself in the cultivation of flowers and trees. But nothing had so great attractions for him as the observation and care of bees, an apiary of which his father kept, using log skeps.

As Dr. Dzierzon early manifested a deeply religious turn of thought, his father took great pains for the further development of his son in that direction, and at first sent him to the public school at Pitschen. Here "our John" distinguished himself by his diligence and progress, and was the favorite of his teacher. In 1822, at the age of 11, Dr. Dzierzon was capable of being promoted to the Mathias Gymnasium, in Breslau. From 1830 to 1834 our great teacher was a student at the University of Breslau. Although he was always diligent in the regular curriculum of studies, yet his hours of study did not interrupt his investigations in apiculture.

During the holidays, Dr. Dzierzon always spent his time under the parental roof, and applied himself to his father's bee-hives which henceforth became his open book of observation and independent manipulation. In Breslau he spent his hours of recreation preferably at well-known apiaries, and read, during his leisure hours, with the greatest interest, whatever he could find printed or written in relation to bees. The old adage, "The bees stung him smart in his youth," had its most striking fulfillment in Dr. Dzierzon. His greatest delight was to admire the untiring diligence and skillful architecture of the little workers.

Becoming more and more enamored with Nature, and finding in her and in her study the marks of almighty wisdom, this struggle for light was destined to become the cause of his celebrity. So, like his great models, Schirach and Christ, in regard to solving the problem of



apiculture, and procuring for himself happiness and contentment by very insignificant methods, he chose the clerical profession, in the hope that a field would be opened to him where his heart would find a means of satisfying its thirst for philanthropic work—where his progressive and penetrating mind might find opportunity to climb the heights of Nature in order to further the interests of our age. And the man to whom the whole apicultural world to-day does homage chose his lifework wisely. How many men of genius are shipwrecked on this rock! Their struggle is in vain because

stances demanded, piled up one on the other. With such hives Dr. Dzierzon began his independent method of apiculture about the year 1833, just as he entered upon the office of pastor in the little village of Karlsmarkt. The defects of such hives did not escape the notice of the acute pastor, and the first thing he saw was the necessity of a removable straw cover which, in winter, would not permit so much moisture to be precipitated as was the case with hives covered with boards alone. In order that this straw cap might be lifted off without injury to the combs, he put on as many inch-wide bars,



DR. JOHN DZIERZON—COPIED FROM GRAVENHORST'S "PRACTICAL BEE-KEEPER."

they are not in condition to tread that path for which their surroundings and natural capacities best adapt them, and to follow their leading desire to achieve things.

In his capacity as pastor of a rural congregation, Dr. Dzierzon was able to care for the bees, which he had loved from his youth up; and time enough remained to him, after caring for his spiritual flock, to busy himself experimenting in the solution of apicultural problems.

According to the methods in vogue at that time among bee-keepers, the best hives were simply four-sided wooden boxes, after the Christ system, and which were, as circum-

spaced a fingerbreadth apart, as were required to cover the hive. This being done, and the bees having built regularly to these bars, he fastened to each bar a piece of comb saved from old hives. This was the first step toward the invention of movable combs, for thereby was the master enabled to remove from the hive each individual comb. After this acquisition, the other results followed as a natural consequence. Of course, this was not all accomplished by a mere turn of the hand; but every step in advance cost an untold amount of trial and mental effort.

Still, extraordinary love for the subject itself,

and a heart full of sympathy for the poor bees, whose exemplary diligence was rewarded by sulphuring, left him no room for standing still in the beaten path, and thus was originated the idea of mobility in frames—an idea over which the whole world rejoices to-day, and which is universally accepted in practice. But as soon as Dr. Dzierzon had begun apiculture on the plan of having movable frames, his active spirit gave him no rest on account of his desire to unlock the mysteries surrounding the inner life of a colony of bees. With this idea in view he was assisted to a great extent, while regulating his hives, by casting a glance at the bees whenever he could, while they were at work. By means of this research many other mysteries were cleared up—pre-eminent among which was one that revolutionized the teachings in natural history in certain classes in zoology—namely, *Parthenogenesis*.

As a means in support of his theory, and one that Dr. Dzierzon made the most use of in his discovery, the Italian bee must be considered chief. With their variously colored coat they rendered the various experiments possible; and even their color itself formed a proof of the theory. As all new ideas at first meet the most determined opposition, Dr. Dzierzon's met the same fate. Long live Dr. Dzierzon! hail to the master of the world! The greatest teachers of that time would not state as orthodox, that drones hatch from unfertilized eggs; that the queen, as mother of all in the hive, has it in her power to determine the sex of the eggs she lays. The strife that sprang up from the propagation of this theory attracted the attention of scientific circles, and the greatest physiologists resorted to their ultimate proofs—the dissecting-knife and the microscope. By means of these, and more especially by the palpable evidence afforded by the bee itself, people were at last convinced; and just in proportion as men were at first ready to cry out, "Stone him!" they were ready to make a triumphal march in honor of the expounder of the new gospel, and "went over into his camp, sack and pack," as Baron Berlepsch expressed it, for the people had grounded their arms.

The reward one receives for a great work consists not in outward show, but more in an inward self-satisfaction; and so it is with Dr. Dzierzon for the many services which he has rendered, not to apiculture alone, but for those which have benefited science in general. These services created a spirit of emulation among corporations and guilds as to who should be first in paying him a tribute of thanks and recognition. The potentates of nearly every land decorated his breast with well-earned badges of honor, as marks of their esteem; and the Lord himself blessed with special favor in giving him a vigorous and happy old age in order that he might enjoy the laurels which he had won by his genius.

Now the honored friend of bee-keepers the world over, we see here a man sought after by conventions—a man of petite figure, with a countenance beaming with the ruddy glow of youth, and lighted up with a friendly look; a snow-white head indicating great force, but, withal, clothed with a very modest demeanor that always, where possible, prompts its possessor to seek the "lowest seat," and to which attention is always turned; a man who is careful to cover himself with his overcoat, and not allow the least puff of wind to lift a lappel of it lest it discover the many honorable medals lying underneath. When, finally, you speak to a man who calmly, and with wonderful patience, listens for the hundredth time—yes, hundred thousandth—to the discussion of the same theme, and still gives you a friendly answer, and points out to you the road you are to pursue as a bee-keeper, that man is Dr. John Dzierzon; and it is your most sacred duty to bow the head in reverence to this the greatest teacher in our branch of industry.

Medina, O., Jan. 17.

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#### SWEET CLOVER ON THE SHORES OF LAKE CHAMPLAIN.

A GOOD HONEY PLANT, BUT ALSIKE BETTER;  
FARMERS LEARNING ITS VALUE.

By W. G. Larrabee.

On page 82, Feb. 1, I notice that H. R. Boardman says that, with him, sweet clover is a valuable honey-plant, and I have heard others say the same. I am located near the shore of Lake Champlain, which has steep clay banks, perhaps one hundred feet or more from the top of the bank to the edge of the water. This is all waste land, and it is a perfect swamp of sweet clover, and extends in either direction as far as the bees would fly; besides this, the roadsides are lined with it as they are in many other places. This makes a good many acres of sweet clover within range of my bees, and it is generally in full bloom at about the close of the basswood flow, and I never think of depending upon it for any surplus honey, except, perhaps, to finish up a few of the sections that are on the hives at the close of the basswood flow. The bees generally fill up the brood-nest for winter a little from it, and it is some benefit to me in that way; but I have yet to see honey put into the sections to any great extent from sweet clover when no other honey is coming in.

I do not pretend to say that sweet clover is of no benefit to me as a honey-plant, for the bees can at least make a living on it while in bloom, and perhaps a little more. I think it very probable the locality has all to do with it, for I certainly have enough sweet clover within range of my bees to furnish surplus honey if it yielded honey as plentifully as white clover, alsike clover, or basswood.



I have had no experience with sweet clover as a forage after it is cured, but I do know that stock will eat it very readily when green, and it is never seen to get very large along the roadsides where dairies are driven to and from the pastures.

Alsike clover is sown to a considerable extent in this locality, and I consider it of much more value as a honey-producing plant than sweet clover, and it is certainly very valuable as a forage-plant, making better hay than red clover. The farmers in this locality do not have to be urged to sow alsike clover for their stock, for they have learned to like it better because it does not grow so large and rank, and makes better hay than red clover.

In localities where it is necessary to cultivate something in order to secure a honey crop (and as it is not profitable to plant for honey alone), I think alsike clover should be recommended first, and perhaps buckwheat next; but in this locality I do not think it advisable to recommend planting sweet clover, expecting to secure a crop of surplus honey from it; but I do advise encouraging its growth in all waste places, for farmers need have no fear of its growing where it is not wanted, and it will never become as noxious a weed as the daisy, thistle, or wild pansip.

Larrabee's Pt., Vt., Feb. 10.

### AN OPEN LETTER TO RAMBLER.

*By Miss Eugenia Morse.*

Dear Rambler:—Everesteemed Friend:—I thought I would write you a letter through GLEANINGS, as I do not know the number of your postoffice box; and at our postoffice the box is more important than the State. However, it is hardly worth while, for I shall be in California about as soon as this can reach you

roundaboutwise, and you will not have more than time to brush up a little before I shall be there, bag and baggage, to stay for good and all. I intend to keep house for you, for I am tired to death reading about those pancak



### RAMBLER'S EXULTATION.

There must be a change or you won't live long. Now, if you would take a little salt and shortening in the flour, and wet with cold water, and roll thin, and bake on griddle, you would find them a heap better. However, it is not worth while writing recipes when I shall be there soon to do the cooking. Father used to say, "Feed your beaus pie, Eugenia," so I shall give you pie if there are any apples in that orange country. Oranges seem too picnicky for common use. How I long to be out in the brush picking sticks for the oven, and away from slavery to the ax and wood-choppers! Such a free, easy, romantic life is just what I've sighed for all my days (since I grew up). I feel young—so *very* young I'm sure we shall make a pair; and if you look as old as you did the morning you went to Chino we shall be a match in looks without disparagement. What I like in you is the way you keep an umbrella. Such careful ways go to my heart, and I know you are not an inferior manager, and will get rich—too rich, may be. We must not set our hearts on riches. My failing is to be a trifle jealous, and I am so pleased to see you so indifferent to all females as you journey over hill and dale, car-



### EUGENIA MORSE'S LETTER TO RAMBLER.

"I shall be with you about as soon as my letter. You will just have time to brush up a little.

EUGENIA."

ing for no tricks or wiles in the fair, only to cook; and, though not a blonde, I can do that. When I think of the fair, and what may happen before we make a pair, and since you wrote last, my heart beats fast. But, don't you hear me coming right along with my dog?

I must close. News is scarce.

Home, Jan. 23.

### SENDING QUEENS TO CALIFORNIA.

EXPERIMENTS IN SUITABLE CANDIES; CONSTRUCTION OF CAGES.

By W. A. Pryal.

*Editor Gleanings:*—I feel that I was more than unusually honored in the issue of your publication of the 1st inst., for I find that, besides the editorial, Dr. Miller and the Rambler have each something to say about the article I contributed to the *American Bee Journal* last month on shipping queens to this State from eastern points.

When I wrote the said article I did not think it would attract any particular attention. I wrote it in the interest of our queen-breeders, hoping that they might be able to find a way around the difficulty I dwelt upon. While the queen-breeders would be the greatest gainers by the discovery of a sure method of sending queens safely every time to this coast, it is true, too, that the individuals ordering queens from the breeders would also be materially benefited, for it would insure to them the certainty of getting a live queen every time they ordered one. There is nothing so exasperating to a bee-keeper away out here as to wait two weeks, perhaps with a queenless colony, in anxious expectancy of getting a fine tested Italian queen, and, when the wished-for cage came to hand, lo and behold! the fine queen was as dead as a door-nail. Again, another two weeks would pass, and a cage would be handed the expectant consignee by the postmaster, which, on being opened, would be found to contain another queen that had "given up the ghost" somewhere out on the plains, or on the desert.

This is no fanciful sketch; it is unvarnished reality—it has happened me more than once. A man getting queens in such condition must have a large stock of patience, if he can keep from indulging in some pretty hard language. I do not throw this out to intimate that I have felt so bad myself under the circumstances. I put on a bold front, and determine to try again. I have the consolation that, if the queen-breeder can stand it, I too surely ought to. But, nevertheless, I do not relish the situation, neither do I like to see a breeder put to the necessity of having to send another queen to replace the one lost in the mail. It requires time, patience, and money to rear queens; why should not the fraternity do its utmost to devise a cage that will be such that there will practically be

no losses in mailing a queen to any reasonably distant point?

I continued my experiments last summer and fall to a considerable extent, at some expense to myself. Though I have learned a good deal that did not seem to be known before to our breeders, I am not yet fully satisfied. I intend to carry my experiments still further.

I do not think it is so much the dry climate of this State, as you say in your editorial on page 103, that causes the candy to dry up, as it is the scorching heat of the deserts in Utah, Nevada, or Arizona, through which the queens have to pass. Those going by the central route do not go through the latter territory, while those that take the other course have to bear the heat in that hot climate, and, in addition, have to stand some of the high temperature of the wastes the railroad traverses in coming into Southern California. But I do not think that the heat of this region is as bad as that of the deserts of Arizona, or along a large portion of the central route before the California State-line is reached. Whether a queen would be apt to fare better by taking the more circuitous route, via Oregon or Canada, I have my doubts. The climate may be a trifle more favorable; but the additional time to make the trip, to say nothing of the additional rough handling she would be subjected to by the railroad postal clerks, would be too trying for her. I believe that we can not get a queen too quickly to her destination. There seems to me to be no need of a queen being longer than seven days making the journey from one end of the United States to the other. This time is not too long for the most delicate queen to stand the hardships of the mail, provided she is suitably provisioned for the trip.

In my experiments last year I sent a queen that had been caged over night before she was put into the postoffice, to Chicago (to the office of the *American Bee Journal*), where she was examined and immediately returned to me. As she reached me in good condition after making this severe trip at the very hottest time of the year, I at once dispatched her in care of Uncle Sam to a distant postoffice in Texas, where she arrived alive. That was a trip that few human beings would like to make in the same space of time at the hottest season of the year, as I have said. The candy used on this occasion was as soft as I could conveniently have it without its running in the cage.

But in other experiments, tried under similar conditions, the queen did not fare as well. Several times the queens died in transit. Sometimes a bee that died would get stuck in the candy at the entrance of the candy-compartment, and thus shut out the other bees from having access to the food. I thereafter remedied this by having the food-compartment so arranged that, if a couple of bees were to try to clog up the entrance, still there would be



room enough for the other bees to get to the candy.

In one case I tried the sponge method of shipping. This was the way used some years ago. It was usually successful in the days of yore; why should it not be so now? The old way was to put a piece of sponge in one of the holes of the cage, and saturate it well with honey. Most breeders used a thick quality of honey. I thought it better to try honey that was considerably thinned by diluting it with water. It worked well, but I preferred candy in a cage that was provisioned with a reservoir for water. I think, though, if I could get a cage that was suitably constructed I should prefer the diluted honey and sponge method. There is no doubt in my mind that honey is the proper food for bees at all times, especially when being shipped in the mails.

I am firmly of the belief that no queen should be placed immediately in the mailing-cage and sent right off to the person ordering her. It would be well to keep her over night in some suitable cage, or, if more convenient, the shipping-cage will do. This will give her a chance to lay a large portion of the eggs that she is charged with. She will then be in better condition to make the trip.

In your editorial you "suggest that the Atchleys commence experiments, not only for their own personal advantage, but for the benefit of the brotherhood of queen-breeders and their customers." In this I had more than anticipated you, Mr. Editor. It was after getting a couple of dead queens from Mrs. Atchley that I suggested that we conduct a series of experiments to find out if we could not hit upon some better way of sending queens safely to this coast. We used all the cheap though healthy queens we could spare for this purpose. Queens were sent back and forth between us for some months. Sometimes they would reach their destination all right; at other times they and all the bees accompanying the queen would be dead. When a queen would come to hand safely she would be reshipped, so as to cover as many miles as she could before the supply of provisions gave out. Mrs. Atchley's best success in sending queens to me was when she had them mailed in double cages, or what she terms "import" cages. These are the ordinary two-ounce cages—two of them being nailed together face to face. I am of the opinion that it would be impossible to ever lose a queen in one of these cages when the candy is just right and the ventilation ample during the hot spell.

I believe that many shippers do not pay enough attention to the importance of ventilating their cages that are sent out in midsummer. Sometimes a large lot of workers are sent with the queen; these bees have a tendency to raise the temperature of the cage, even above what it is without the car, which may at the time be going through the hottest portion of the coun-

try. I have received cages overloaded with bees, at the height of the hot spell, and no more ventilation was provided than that made by the manufacturer of the cage. The makers of shipping-cages do not put in any more ventilating-holes in the cage than are required for the coolest part of the year; they could not very well do otherwise, for the reason that, if there were more holes, it would be harder to stop them up when they were not wanted than it would be to make additional holes when they were required. Perhaps the proper way to overcome this feature would be for the user of shipping-cages to call for two kinds of cages—one kind to have no more ventilating apertures than necessary, while the other should have ample for the warmest portion of the year.

I consider this matter a very important one, and hope that our queen-breeders will give it as much attention in the way of experiments the coming season as they possibly can. Already, from what I learned the past year, I feel that I can ship queens to any part of the Union and seldom lose a queen. So confident have I become in this matter that I have about concluded to make queen-rearing (as a business) a part of the work in my apiary the coming season, and I expect to send some queens to the farthestmost parts of the country. My location being one of the finest in the United States for shipping, especially to the islands of the Pacific and to the Orient, I hope to do enough in the queen-rearing line to pay me for the trouble attendant in conducting such a branch of the apiary. I am located directly opposite the Golden Gate, and snugly ensconced in the Contra Costa foot-hills. The ride to San Francisco by rail and ferry is 45 minutes, which places me in quick communication with the Pacific metropolis. Then Oakland, which is only four miles away, and which place is the terminus of all the railroads coming into California, will give me a chance to get my queens into the mails and off to the various points to which they may have to go, without any loss of time.

Since I wrote article for the *American Bee Journal*, several breeders in the East have sent me the style of cage they use. Of the several that I received, that of W. C. Frazier, of Iowa, seems to be the most practical. He claims that he has had excellent success in sending queens in his cages to distant points. I shall give it a trial with different kinds of candy. It seems to me that his cage is the best to use where the shipper uses a very soft candy. There will be none of that clogging that I have referred to in the fore part of this letter, as there are so many places for the bees to get at the food.

On page 80 of GLEANINGS, Dr. Miller suggests the making of a candy that is hard on the outside and soft in the middle, after the fashion followed by confectioners in making a certain kind of toothsome candy. This may not be a bad idea. I do not know how it would work. I



think the following might be a better way, and it is not altogether unlike the plan suggested by Dr. M.: Have two holes for the candy, they to be connected by a small opening between the two. Into the one next to the part of the cage inhabited by the bees as a living-compartment, place a candy of the consistency of that used for ordinary shipments. In the next one, place a rather soft candy. There should not be more candy in the first hole than will be required to take the bees to the place where they will enter the hot region. They will then be ready to commence operations on the soft candy, which will be their food until they reach their destination.

Rambler, on page 87 of the same issue, mentions a case where a breeder in San Bernardino Co., this State, shipped queens to a bee-keeper in Inyo Co. in April, the latter being anxious to get early queens, as he could not raise them in his location. To get to Inyo Co. from any part of California near the coast is about as bad as making a trip from San Francisco to Chicago; in fact, I would sooner go to the latter place than I would to the county "over the hills and far away," though Inyo Co. is no mean place, by any means. The range of hills, or, rather, high mountains, makes it necessary, in order to get to some of the sections thereabouts, to go to San Francisco and other coast points to Reno, Nev., via Sacramento, and thence through Nevada to the lower, middle, and eastern part of the State of California, where Mono and Inyo Counties are situated, unless one travels other than by rail. It is a long roundabout way, and is not only a costly but a very disagreeable one. I believe most if not all the land there is very much elevated, consequently it is much colder for a longer portion of the year than most other parts of California, save on some of the eternally snow-capped peaks of this State.

Yet I think I would undertake to get queens to the gentleman the Rambler refers to during April. In sending queens to such a place one must provide a warm cage in the fore part of the year. The trip over the mountains via Sacramento and the summit is a cold one, even in early May, as I have found out. The highest point is on the line in the Sierra Nevadas, in California, being 7017 feet, which is up pretty high. By a careful study of the country through which one's queens are to pass, there is little danger of losing a single bee by following all the little details as to food, ventilation, or, when necessary, the wrapping of the cage and the number of attendants accompanying the queen.

Mrs. Atchley has pressed me to devise a cage that shall answer all the requirements necessary in a cage for long-distance shipping. I do not think I shall be likely to hit upon the cage that will fill the bill. I am inclined to think that some one of the several cages now in use will come up to all the requirements when we

learn *what is the right food* to place in them to keep the bees alive during the journey. As I have said before, there is room for experiments in all these directions; and let us hope that, before this year is ended, the queen-breeders of this land can exclaim, as they behold the long-wished-for cage and shipping-food, "Eureka!"

North Temescal, Cal., Feb. 9.

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### THE CALIFORNIA KING-BIRD.

By Prof. A. J. Cook.

As is well known, the eastern king-bird, or bee-martin—*Tyrannus tyrannus*, Linn.,—is not only an insectivorous bird, but has the exceptional and injurious habit of snapping up and devouring our bees, both workers and drones, as I have surely demonstrated by opening the stomach of the bird in question. The bird rests on some perch near the apiary, and, as the bee flies by, swoops down upon it and bears it in its bill back to the perch, then seems to swallow it at its leisure. How about the stings? Has the bird learned some bright way to avoid them? It would seem hardly possible. Or has the throat of the bird become insensible to the stings of outrageous—not fortune, but bees—and so the bird's throat becomes a sort of pin-cushion for bee-stings? I have found by actual examination that this is true of bee-eating frogs. After seeing a frog lick up three or five bees I killed the batrachian and found that his toadship had just that number of stings holding to the walls of its pharynx.

California has also its king-bird, or the California bee-martin, *Tyrannus vociferans*. Swains—which, I learn, also preys on bees. This is about the size and form of the eastern species, but is dark gray in color. I have just prepared the skin of one of these for our college cabinet, and found two olives in its stomach. We often notice that another biped often presumes on the capacity of its stomach when eating the delicious olives, and it would seem that this king-bird did the same; for it is hard to see how so small a bird could swallow two large olives without damage to its stomach. It is said that people have to learn to like olives. Is it not presumable that the California bee-martin's taste for olives is also acquired, as the olive is intensely bitter? We see, then, that this California king-bird is an enemy in two important senses: It kills bees, or is said to do so, and it certainly eats olives. As I am now right in the very center of this marvelous bee-country I shall soon know whether this bird does eat bees; and if so, how the sting matter is managed. This is only one of the many important problems that await solution in the land of the sunset.

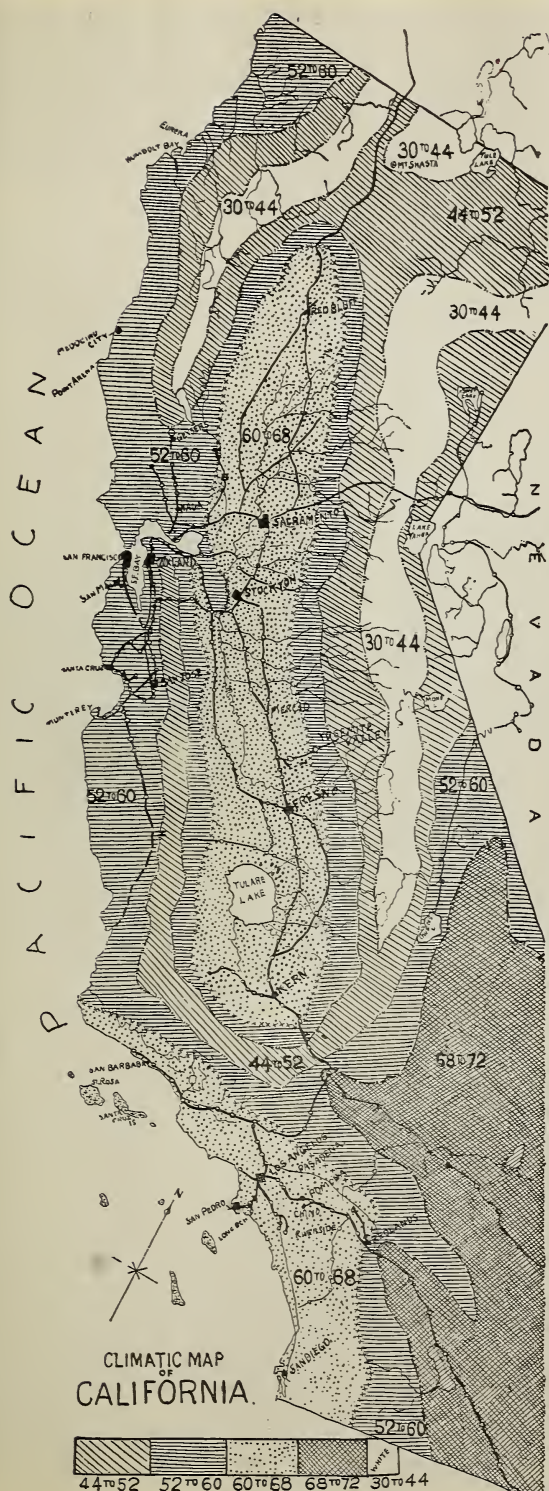
Claremont, Cal., Feb. 14.

## RAMBLE 103.

## CLIMATE OF CALIFORNIA.

The Rambler this time holds before the readers something that looks much like an anatomical figure of a man's body. The back seems to have received a hard knock, and there's the stone that did the knocking, securely lodged in the back. A closer observation, however, enables us to read upon it the words Lake Tahoe. That dispels the anatomical idea as applied to man, and we have before us a climatic map of California.

The climate of this State is so diverse that it is the boast of its inhabitants that it can supply any kind of climate desired, and at few hours' notice. That this claim is not without foundation, we can prove from the study of the very interesting map before us. The State of California measures 800 miles in length by about 200 in width; and could its area be correctly measured it would be the first State in size in the Union. To illustrate. Texas is called the largest State. Let us lay down a large piece of cloth to represent that State. Our cloth would represent a nearly dead-level plain, with a few wrinkles in the northeast, representing hills. Let us now lay down a large cloth representing California. Our second operation upon the cloth would be to commence puckering it up. Here we make an immense pucker to represent Mt. Whitney, 15,000 feet above sea-level; then another pucker for Mt. Shasta, 14,000 feet; then we keep on puckering 14 other mountains that average 10,000 feet each; then the immense Sierras; the Coast Range; San Bernardino, and a host of lesser mountains and ranges, and every one of them cut into by immense canyons, of which the Yosemite is only one of the noted. When we complete the puckering of our cloth, and have before us a relief map of the State we find the earth-sculpture here fashioned upon a mighty scale; and the contrasts of heat and cold are no less striking; for, from Mt. Whitney's summit, capped with snow, we look down upon the most desolate and torrid region on the continent—Death Valley—the area of which is much below the sea-level. Could we, therefore, iron out all of these immense folds as we can run out





square of cloth, and measure it, it would result in an immense land area, the greatest in the Union, according to the government measurements. However, from the tops of our mountains we shall have to give the palm, as to size, to Texas, and content ourselves with other great features that can be found only in this State.

The climate of California, and its varieties, have been the subject upon which many writers have expatiated; and although we have many varieties of this commodity, the seasons are reduced to two—the wet and the dry, or the summer and winter; and these are so near akin that our winter would pass for a very fair summer in some of our Eastern States, while spring and fall are unknown.

The causes that are constantly at work to produce an agreeable state of the atmosphere are, our mountains on one hand and the warm currents of the Pacific Ocean on the other.

If we look at the map we find that the various shadings represent the various mean temperatures that are found in the State. First, the dark shadings in the lower portion represent that part of the State that has the least rainfall and the greatest heat, and embraces the Mojave (Mohave) and Colorado Deserts; and when we speak of deserts, do not think of them as a dead-level plain, for it is not. Sand dunes, hills, and even respectable mountains, are in this hot country. The figures 68 to 72 convey but a small idea of this country; for in the hot season it is full of terrors, and not a season passes but parties led on by the alluring idea of finding gold-mines in this forbidding region suffer terrible hardships, and many leave their bones to bleach on the arid sands. The terrors of this region culminate in Death Valley. Still, there is a redeeming ray of hope for much of this region. If water can be introduced to it, the desert will be made to blossom in beauty.

Within the speckled portion of the map we find the great fruit and grain producing region. In the southern portion is the citrus belt, supplemented by similar belts in the extreme northern portion. The long speckled portion represents the interior basin of the State, including the San Joaquin and Sacramento Valleys. It is in these valleys that the immense amount of grain is produced; and the rancher, instead of watching the skies, as does his eastern brother, in fear that an untimely shower may ruin his grain, piles it up in sacks like so much cordwood, where it remains for months uninjured.

While citrus fruits are predominant in the southern speckled portion, deciduous fruits and grapes are the main products in the fruit line in the interior basin. It is in this portion, also, that we find the greater portion of bee-ranches; for it is here, and in the portion marked with horizontal lines, that the sages grow the most luxuriantly, and the thousands of other flowers

for which California is noted. In this interior basin the temperature sometimes rises to 115° in the shade; but, owing to the dryness of the atmosphere, this temperature is not felt so acutely as 90° in the East. In proof of it, sunstroke is *almost* unknown on this coast. In this speckled portion the temperature also registers at times a few degrees below the freezing-point. It is then the orange-grower gets anxious about his tender product and investigates his damages.

The portion of map marked with straight lines is that portion having the least variation in its climate; and includes nearly the whole sea-coast, and it is termed the frostless belt, as well as escaping the extreme heat of summer. It will also be observed that a narrow line of this shading surrounds the central basin. This line might be indefinitely extended around every mountain and foot-hill in California. It is in many portions of this line that tomatoes are grown the year round, and those portions that boast of raising strawberries and kindred fruits all the year round is in this belt. In this portion are found the hot and mineral springs, and it is here the health-seeker finds a home and a prolonged life. In this portion, as well as in the speckled portion, the nights are nearly always cool; and, however fatigued a person may become with the toils of the day, he can retire to refreshing sleep; and the more refreshing it is if taken under the blue dome of heaven.

There is not the least doubt that, if persons having pulmonary troubles will come to this State at an early stage of the disease they will find health and a long span added to their lives; while it is equally without a doubt that, if such persons delay until one foot is already in the grave, the other foot will soon follow upon their arrival here. A person coming to this State for health, and not finding it, should study this climatic map, and change his location from time to time to a higher or lower altitude, and soon the suitable point will be found, and improvement will be first manifested in an elevation of the previously depressed spirits, and, finally, more endurance, and a desire to be out in the pure air; and here there is ample opportunity to indulge in this desire, or, during three-quarters of the year, the skies are cloudless.

The next belt marked with diagonal lines includes the higher foot-hills and the most of the Coast Range, and quite a large area in the northeastern portion of the State. Some snow falls in this portion, and the temperature gets down to a biting degree. Still, it has many localities in which it is desirable to live. It is said, by those who have investigated the northeast portion, that it has an abundant honey flora, and it will be only a question of time when this portion will also be dotted with miniature cities of bee-hives. It would be well, perhaps, for those who are seeking new honey-fields to deflect their course into this region,







near to or remote from Honey Lake, and the results in that unoccupied field might be as good as or even better than in the overcrowded southern fields.

There is one peculiarity in this climatic belt, and also in the belt below it. There are many locations where the influence of climate is such that, even in Northern California, fruits are grown and put upon the market earlier than they can be produced in the warmer south.

The last belt, in white, marks all of the higher altitudes, and the average temperature, 30 to 44, reveals a very low temperature during the winter months; and if a person who has formerly lived in the cold eastern climate, and now resides in the sunny valleys of California, desires to taste again the rigors of an old-fashioned winter, a few hours' ride will land him where ice freezes a foot thick, and is harvested for commercial purposes—where sleighbells jingle, and where snow in great quantities is found—in such quantities that the So. Pac. R. R. is covered with immense snow-sheds for 40 miles, and still we are in California. These higher altitudes are noted mostly for producing our finest pine lumber, and the lumber business is the chief industry. It is quite probable that bee-keeping is at a discount in this region. A bee-tree may now and then be found, but those wonderful finds of honey in trees and caves are not found in this region. The higher altitudes in all this region as we approach those mountains over 8000 feet in height are practically unexplored and desolate regions; and it is here that we might change the term from "climatic" to "climb-matic" California; but in this phase the Rambler has shown quite conclusively that the climb-matic portion also exists in all portions of the State. In this belt the gold-seeker is probably the most persistent explorer, and the marks of his pick are left upon the most inaccessible mountain-side; and since silver has received a setback, the gold-seeker is out more numerous than ever, not only in this climb matic belt, but all over the State, and, as before stated, the bones of some of this class are bleaching in the vicinity of Death Valley. The hunter now enjoys the climb-matic belt, for it is into these remote regions that the grizzly bear has now retreated. The advance of civilization, and cultivated lands in the lower belts, drive all wild animals into these regions, and even here they are remarkably shy, and not an easy prey to the hunter. The bee-keeper hardly ever ventures into this belt unless it is for the pure love of climbing, and to experience the thrilling views from mountain-peaks.

The portion of the climate of California that is disagreeable to many is the periodical northers. The norther is presaged by a few days of remarkably clear days. The distant mountains can be seen with such distinctness that they seem but half the distance they really are. The eagle soars at a great altitude, and, with

head to the north, suspends himself in one spot for a long time. The next morning the wind begins to blow; little clouds of dust rise here and there in the valley, and ere noon the air is full of fine dust, hurled along by the wind, which has now attained much velocity; but it is scarcely ever destructive. The effect of the norther is to produce languor and headache upon a great majority of people. The wind is said to be highly charged with electricity. Though disagreeable to endure, these northers have a beneficial effect in clearing disease-germs from the atmosphere.

If, in the height of the honey season, the norther comes down upon the blossoming flora, the bee-keeper hangs up his hopes for much honey for several days, for the sources of nectar are thoroughly dried, and do not quickly recover.

By referring to the map it will be observed there are but few lakes in the State. Water, in a great measure, is hidden beneath the surface, and the so-called dry rivers in the southern portion are found to be running (or percolating) streams when we dig beneath the surface. The northern portion of the State, having more rain, possesses the most live streams.

Taking it all in all, this sunset land has fewer disagreeable features than our Eastern States. We can sleep outdoors nine months in the year; and, while we are living with the roses, and imbibing their fragrance, we can look across them to the snow-capped mountain; the added pleasures of good health; a measure of prosperity, where ten-acre farms and less care are the rule. These all make California a desirable home to many besides the

RAMBLER.

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### USE FOR THE SELF-HIVER.

HOW IT MAY SAVE UNNECESSARY LABOR ON SUNDAY.

By C. H. Dibbern.

"Is it right to hive bees on Sunday?" is a question asked by W. E. Dean, on page 99. I do not propose to go into the religious aspect of the question, but wish to show that such work is entirely unnecessary. It would certainly not be right to allow swarms to go to the woods because they happen to issue on Sunday. Such swarms usually represent all the profit we can reasonably expect from a colony during a season; and to allow such to depart in peace before our very eyes, or during our absence, would not be doing our best for our families. If it is worth our while to keep bees at all it is worth doing right; and if we do not need the profits from the bees, for the necessities of life, we find such income very convenient to buy luxuries, such as magazines and books, musical instruments, furniture, pictures, and a thousand other things that go to make up a home.

No; don't let the swarms go to the woods, neither oblige some of the family to remain at home to "watch for swarms."

Drone-guards will prevent swarming temporarily; but I object to them on account of the drones fussing to get out, and keeping the whole hive in a hubbub. Why not use the drone-trap pure and simple? That will do away with the drone nuisance; and, should a swarm issue, catch the queen and save your swarm, even while the whole family is away listening to the sermon.

Now, instead of dividing on Saturday, as proposed by Mr. Dean, when perhaps the bees are not ready for such division, or so far advanced that they would swarm again in a few days anyhow, you can make such division as desired, on Monday. The drone-trap is good; and if there were nothing better I should use it on every hive in my apiary during the swarming-period. But, why not go a step further and use the self-hiver? But it will be objected to as not yet being perfect, or, at any rate, as not being generally understood. It is true, there have been many failures, and some have given up in despair.

After a great deal of experimenting during the past four years, on a large scale, I have finally adopted a plan that works fairly well. It has all the advantages of the drone-trap, and goes much farther, as it hives the swarm in the hive, where they are to remain. The plan consists of an empty hive placed on a wood-zinc honey-board, on a bottom-board placed in front of the swarming-hive, as heretofore described in GLEANINGS. The bees pass from the old hive through the bee-space formed between the bottom-board and honey-board, and through the swarmer at the entrance. A few will work up through the honey-board, and out of the entrance of the new hive. As swarming approaches, some bees will take possession of the new hive, and will commence drawing out the foundation, and commence filling in honey. How far this may be desirable before swarming, I have not yet determined; but it can be regulated by covering a part of the honey-board, under the new hive, with oilcloth or tin.

One objection to putting the old hive on top of the empty one is, that the bees too readily accept it as a part of their hive, and use it for storing honey in, instead of carrying it into the sections.

I have no "ax to grind" in this matter, as I have no idea of patents, etc. My only desire is to make bee-keeping less irksome. If one has but half a dozen or so of colonies it will certainly not pay to watch for swarms or keep the family doing such useless work. If one has colonies by the hundred, then there is all the more reason for using the hiver, as there is no such trouble from doubling up as where natural swarming is permitted; neither is any climbing of tall trees, endangering one's life, at all nec-

essary. There is no sulking of bees in my plan, and the little run through the space under the new hive seems only to give them additional energy. The swarming propensity is also greatly abridged.

Milan, Ill., Feb. 9.

[You are quite right. The self-hiver will save unnecessary work in hiving swarms on Sunday. One quiet Sunday morning three or four swarms came out, and A. I. R. came rushing over to "our house," telling us that the bees needed looking after, as they were swarming. In later years he has left all such work for us. We very quietly replied that they were all right, and that we need not trouble ourselves, as self-hivers were on those colonies that were likely to cast swarms. A. I. R. was a little skeptical, but in a few minutes he was satisfied that the self-hivers were doing their work. Monday morning showed that the bees of each swarm had gone into the new hives, gone to work, and every thing was as nicely done as if we had done it ourselves, with all the usual paraphernalia, such as bee-veil, smokers, hiving-boxes, and squirt-gun, to say nothing of hurrying and scurrying about, shinning up trees, taking stings, etc.—Ed.]

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### CALIFORNIA ECHOES.

BY RAMBLER.

Dr. Miller looks very Y's  
While he sits at his E's  
Poking straws into other mens I's,  
Shouting, "It's all in behalf of the B's."  
Now, Dr. M., just mind your P's  
Or we'll send you o'er the C's  
Where the Chinamen pick T's;  
Then what'll you do for straws and B's?

No, Dr. M., I did not get the kerosene in my flap-jacks; but I must 'fess I did get some on my toast one evening.

Some of our California bee-keepers are getting blue on account of the light rainfall up to date. Keep up courage, gentlemen; late rains sometimes do a world of good.

The latest wrinkle of the enemies of the bees is to mix yeast and honey, and expose it where bees will get it. The mixture, when stored in the hive, sours and ferments, and is disastrous to the colony and the bee-keeper.

Just see what sort of men we had at our State convention: W. P. Richardson, 65 tons of honey; Mr. J. Moffatt, 54 tons; J. F. McIntyre, 24 tons; M. H. Mendleson, over 30 tons, and others well up to those amounts, too numerous to mention.

Railroad statistics for 1893 give a sum total of honey shipped from Southern California at 3,303,000 lbs. Add to this the shipments by water and from Northern California, also quite an



amount that is yet unsold, and the figures would run up to over 5,000,000 lbs., and not a bountiful season at that.

Prof. Cook carries a chemical laboratory in his mouth. He detected samples of honey that were mixed with glucose—some 25, 50, and 85 per cent mixtures that were prepared by Mr. Brodbeck. Prof. C. says that people using this mixture for a while get a dislike for honey—another argument in favor of laws against adulteration.

Bee-keeping seems to be getting some hard knocks from Uncle Sam down in Orange Co., Cal. A government reservation has recently been parceled off, and everybody is ordered off the land, including several bee-keepers. Of course, the busy bee will not harm the trees and the flowers, but the busy bee-keeper can wield an ax, and that's the reason why they have got to get out.

We think bee-keepers in this State should begin to turn their attention to planting honey-producing plants and trees. Our irrigated district, where the sages have been cut off, would grow many Eastern plants; but here lies an obstacle. Irrigated lands are subject to close and clean cultivation, and there is no room for weeds. But for all that, we have a mind to see if the noted willow-herb plant will grow here.



### LET US BE CHARITABLE.

T SUPERS VS. SECTION-HOLDERS.

*By Dr. C. C. Miller.*

I have a letter from a Canadian correspondent who desires a reply in GLEANINGS. He prefaces his questions by saying that there are few whose advice it is safe to follow, because policy rather than conscience seems to be the governing motive. Don't you think you're just a bit hard on your kind, my friend? I know we're a pretty selfish lot all through, and yet I find evidences of no little unselfishness and conscience left. I was in Chicago a few days ago, and in several instances asked information and advice of entire strangers. In every instance it was given with apparent pleasure, and, I think, with real interest. One man took the trouble, of his own accord, to write down an address I asked for. A boy walked some little distance out of his way to a point where a building could be shown to me. In the hundreds, perhaps thousands of instances of the kind, I have very rarely found any other spirit.

I believe that bee-keepers are just as good a lot as the average—indeed, I think a little better; and although it isn't a safe thing to follow

indiscriminately the advice of all, it is more because they don't know, even where they feel positive they do know. If I were to follow all the advice given me, I should have a hopeless tangle of all sorts of things in use, much to my detriment; and yet I believe the advice is usually given in the best spirit, and with a real desire to serve me. A man finds something that he is much pleased with, and he is hardly to be blamed for thinking it would be a good thing for me. So, let's be as charitable as we can.

### THE SUPER I PREFER.

You ask me to give my choice of comb-honey super, with reasons therefor. The printing of my answer will be a proof of unselfishness on the part of GLEANINGS, and yet I'm sure the answer will be printed, for my choice of super will not agree with his. He will tell you the section-holder, and I'll tell you the T super. He'll think, even if he doesn't say so; for, between you and me, he's a good bit of a gentleman—he'll think I'm a bit pig-headed and old-fogyish, and I'll think I know better than to be taken with a new thing just because it's new.

### MY REASONS.

Well, I've tried largely wide frames, Heddon or Moore supers, and, to some extent, section-holders, and I think I can get better results, with less labor, with the T super than with any of these. But that may not satisfy you, for those who are just as fit to judge may prefer one of the others. It is hardly worth while to discuss wide frames, since they are so generally discarded, and yet I had good results with them. The Heddon crate will not allow the use of separators, and that is a necessity when honey is to be packed for shipping.

Section-holders, as I have said, I tried to a limited extent, and should have given them a fuller trial, but it cost too much time and temper. Perhaps others have found it easier to empty them, and the fault may be mine. That aside, I may say that, for my use, the T super has decided advantages, and I don't know of any advantage but one that the section-holder has. With the T super, separators can go no lower than the T tin, while the section-holder allows them to go to the bottom of the section. That, you see, leaves a space the thickness of the separator, for a distance equal to the height of the upright part of the T tin, to be filled in with propolis in the T super, which is avoided in the section-holder by having the separator go clear to the bottom.

Now, please remember that I said that, for me, the section-holder has no other advantages that I know of. I'm not quarreling with what others prefer. The claim is made, that open-side sections can be used in section-holders and not in T supers. Well, I don't want open-side sections, so that doesn't count.

Root's A B C says, "As the upright of the T takes about  $\frac{1}{16}$  of an inch, it leaves a space be-

tween two rows of sections, which the bees are inclined to fill with propolis." If that means at the top, it is obviated, as mentioned in a footnote, by pieces of separator stuff  $\frac{1}{4}$  inch wide. If it means along the full length of the sides of the sections, it is simply an impossibility for the bees to get at that part, and, as a matter of fact, that part of the section comes out just as clean as it went in. Indeed, with these little separators at the top (and I wouldn't think of doing without them) it is the T super and not the section-holder that has the advantage; for, no matter how little the play, there must be some play in the length of the section-holder to allow the sections to be got in, and it will be just play for the bees to fill up that play-space with bee-glue. In the T super, all the play is taken up by wedging in the top separators.

The A B C says the one-piece sections in T supers are likely to be a little diamond-shaped. I think that must have been written before knowing about putting in the little top separators, for with them the sections are perfectly square. On the other hand, there is more chance for sections to be out of square in the section-holders, for the bottom-bars of the section-holders will sag. That may not throw the sections out of square enough to be serious, but it may be a serious matter in another direction. Nowadays we want to maintain an exact space between the brood-frames and what is over them. These bottom-bars need to sag only an eighth of an inch or less to insure the space being filled with propolis, fastening the bottom-bars of the section-holders to the top-bars of the brood-frames. The T tins are entirely free from any sagging.

The A B C says, "Bees will always fill the sections directly over the brood—that is, the central ones—before they will the outside rows. In order to make them fill out alike, it is not an easy matter to change places with the central and outside rows," in the T super, but with the section-holders "the outside rows can easily be shifted from outside to center." With me this does not count for an advantage, for, if the shifting could be done twice as easily with the T super as with the section-holder, I would not shift them. From long experience I have found that the bees will not always make as nice work finishing up a section that has been moved; and in any case I want the work done in a wholesale manner, taking off a super when all but the four corner sections are finished, if, indeed, any are unfinished. Then the unfinished one can be massed in a new super to be finished.

At present I'm doubtful whether any one knows for certain what is the best width for a section. I have changed once, and may change again. The section-holders will take just one width of section, while my T supers will be all right for any possible width.

My preference for the T super is emphatic, but I'm ready to change for something better.

I may find it within a year, but I am not trying to invent it.

Marengo, Ill.

[As you say, Doctor, we don't agree with you. As you have been fair enough to state our arguments it will not be necessary for us to restate them. We give our customers the option between the two kinds of supers so they can take their choice.—Ed.]

#### FOR WIDER AND THICKER BARS.

I am with Dr. Miller on brood-frames. I should like them wider than you now make them, and deeper—i. e.,  $\frac{3}{8}$  deep at the out edges, or 1 in. would be better yet. Bees are not so liable to build brace-combs when the frames are  $\frac{3}{8}$  or 1 in. deep at the out edges; and when they don't build brace-combs they won't build burr-combs. With proper bee-space above the frames, the end-bars and bottom-bars are good enough I think. You might narrow the ends of the Hoffman top-bar a little, and then the end-bars would not be so liable to split, and be better to catch hold of, as one suggested some time back—J. A. Scudder, I believe—but he wants a thin top-bar, and I don't. I'll stoutly stand up for 1 in. or  $\frac{3}{8}$  at least, clear to the out edges of the frames. A. T. McKIBBEN.

Morrill, Minn., Dec. 15, 1893.



#### PREVENTION OF ROBBING.

*Question.*—Nearly every year I have trouble with the bees robbing in early spring. Either my own bees rob each other, or the bees of my neighbors rob mine, or both. What is the best method to prevent bees from robbing? I have tried smoking them every two or three hours, but it does no good.

*Answer.*—The first thing to be done by way of preventing robbing is to take every precaution against the *possibility* of robbing occurring. Here is where the beginner is the most liable to err. Entrances to weak colonies are often left open full width, hives opened in the middle of warm days, or honey left scattered about in such a manner as to entice the bees to rob, rather than to use methods to restrict the natural propensities of bees to rob each other. A man once came to me with the complaint that his neighbors' bees were robbing his, and wished I would go and see that neighbor and see if he would not shut up his bees before they "cleaned his entirely out." I told him I guessed I would go home with him and see how things were there before I went to the neighbor. On arriving there I found his one hive set up on half-inch blocks all around from the bottom-board, while in a dish a few feet from the hive



was a lot of comb that had the appearance of having contained honey an hour or two before. I asked what that dish of comb meant. The reply was, that he thought perhaps the bees did not have honey enough, so he set out a little to feed them. In a few brief words I told him that, should he leave all the doors of his house open nights, scatter a few twenty-dollar gold-pieces around by the gateway, and let it be known that he had thousands of dollars in the house; he would not expect it would be long before there would neither be gold by the gateway nor in the house; and yet he had placed his bees in the same position regarding other bees that he would be placing himself and his gold in regarding any thieves that might be prowling about, should he do as above. Without carrying this story further, I wish to say that the first means looking toward the prevention of robbing is, to know the condition of the colony as regards its numbers before any really warm days come in the spring; for if a colony is weak in numbers, that colony is almost sure to be robbed out unless extra precaution is taken. Again, if a colony is queenless and broodless in early spring, that colony is almost sure to be robbed out; and if robbing is once started on such colonies, a general row may be expected throughout the apiary. I make it a point to look at each colony some cool day in early spring to see how many spaces between the combs they occupy, the number of which is set down where I can see it at a glance, and the same thing is done with every colony before it is taken from the cellar. Now, suppose I find that the colony occupies from five spaces between the combs, upward, I call that colony a good one; and to each good colony I allow an entrance, during the spring months, say 3 inches long by  $\frac{3}{8}$  high, that being amply sufficient for any colony after they have had their first or cleansing flight. If the colony occupies only four spaces, then the entrance given is  $1\frac{1}{2}$  inches in length by the above depth. If it occupies only three spaces, then the entrance given is only  $\frac{3}{4}$  inch in length, and I rarely ever contract an entrance to a much less space than this. It is very easy to say, "Contract the entrance so that one bee at a time can just get through," but whoever so contracts will soon find that a trouble comes in here by way of dead bees being removed from the hive, when, as such can not be drawn through this space, the entrance is clogged or stopped up entirely. If the cluster in any hive does not occupy three spaces to a sufficient amount to call it a colony sufficiently strong to care for itself, or occupies less spaces, then all the combs are taken away from it except one of honey and one for brood, and a division-board inserted, placing the comb of honey next the side of the hive, the comb for brood next this, and the division-board next the comb for brood, while the entrance, of about the size of the smallest given above, is placed

at the opposite side of the hive, so that the bees, in going out and in, must travel over the vacant space between the division-board and the entrance. Fixed in this way a colony must be so weak that it is good for nothing if it does not protect itself from robbers, for robber bees do not like to travel over a long vacant space inside of a hive where they are liable to be seized by a sentinel at any time.

As proof of the effectiveness of this plan I will say that I have not had a colony robbed since I adopted the above, and it is rare that any attempt is made to rob even weak nuclei. If a colony is found queenless, supply it with brood from some other colony till you can procure a queen for it, providing it has plenty of bees. If it does not have plenty of bees, unite it with a colony having a queen. Now, if, through careless handling, or from any cause, robbing is started, I think the best thing to do first is to throw a sheet over the hive that is being robbed, fixing it all around on the ground about the hive so that no bees can crawl under it. Leave it thus for half an hour, when you will suddenly lift it from over the hive so as to let the robbers which have collected on the under side out, and the bees from the colony (shut out by the sheet) go in. Replace the sheet for another half-hour, when it can be removed, a handful of dry grass or hay put over the entrance, and another handful of wet hay put on top of this, which will allow them to dwell in peace the rest of that day, as robbers do not like to crawl down through wet hay, unless there are some coming out loaded with honey all the time, and you have stopped the loads of honey from coming out with the sheet before the hay was put on.

Now, as I said, this will stop the robbing of any colony good for any thing, where the entrance has been fixed as above; and, with one exception, if a colony will not take care of itself the next day after being treated as I have given, I would take the combs away from them, allowing the few bees to go with some other colony, rather than to run the risk of having the whole apiary demoralized by the bees, taking the honey from the hive at some time when we were not present to stop it. The exception above alluded to is where a colony may be very weak, but have a choice queen that we wish to save, but have no place to put her just at this time. Should this be the case, treat the colony to the sheet and wet hay as given above; and when night comes, carry such colony to the cellar and keep it there till you can use the queen. If you are very anxious to build the colony up, and it is strong enough to live in the cellar till the bees can gather pollen, it may then be set out and given some hatching brood to strengthen it; for after the bees secure natural pollen freely, the disposition to rob seems to leave them to a great extent.

I have been thus explicit in this matter, for

there is no one thing so vexatious in the spring as the robbing of bees.



UTAH HONEY: PECULIARITIES OF THE HONEY;  
FROM A BEE-KEEPER WHO LIVES WHERE  
IT IS PRODUCED.

*Mr. Root:*—I thank you for standing up in defense of Utah honey. I have had the same thing to contend with, especially in the mining towns, where many of the people have never seen candied honey, and imagine all honey must appear like the stuff sold in the stores, in a liquid form, dark and strong. I have often been accused of mixing sugar and lard in my honey; but the absurdity of that ought to appear, because both of these articles command a better market price here than honey, and I believe but few if any of our bee-keepers feed sugar to their bees; and to mix it with honey is out of the question.

In regard to sweet clover and alfalfa honey, there is no difference that I know of, only in the taste. Sweet clover has a taste peculiar to itself, and has a very fine flavor after it is fully ripe. All of our Utah honeys candy extremely quick, for some cause that I can't explain. My whole crop, 10,000 lbs., candied in September last year.

GEO. FREESTONE.

Vernal, Utah, Feb. 12.

#### QUEENS LAYING IN THE SUPERS.

Friend Schaeffle, from his letter on page 150, I am afraid, has got the impression that I am somewhat skeptical about his statements. Not by any means; and I didn't know, till he arrayed them together, that I had so many times replied to him. I'm sure I have none but the kindest feelings toward him.

I don't for a minute dispute, friend Schaeffle, that honey in uncapped cells granulates sooner than that which is sealed. It always does with me. But I do think you are wrong in the opinion that "they are evaporated to such an extent that they candy." I feel pretty sure that evaporation helps to prevent candying. And I think the honey in uncapped cells candies sooner, largely because it is thinner than the rest. And if I have the right case in mind, there was something decidedly peculiar about the queens laying so much in his supers, and I'd like much to have the puzzle solved; but I never thought of doubting his statement. C. C. MILLER.

Marengo, Ill.

#### WHY BEES ARE NECESSARY FOR SCATTERING POLLEN.

On page 44, in reply to Dr. Miller, I will say that I think there is no place where fruit grows but that there is some kind of bee that gathers pollen. I have seen what I call sweat-bees at

work on strawberry-blossoms when there was not a honey-bee in the field that I could see. I should like to ask, if pollen is not needed, why a pistillate variety does not set fruit without a staminate variety beside it; and if it needs pollen (which science and reason teach it does), then there must be something to carry the pollen from the staminate to the pistillate variety; and I do not think the wind will do the work properly. I have been in the small-fruit business (on a small scale) for the past 20 years, and have made some observations in this line, and I believe that God, in his infinite goodness, has given us the bees to perform this work.

Columbus, Wis., Feb. 14. SUPER LIFTER.

#### BEES ON BASSWOOD; A REPLY TO FRIEND FULTZ, ON PAGE 46.

*Friend Root:*—In regard to Mr. W. S. Fultz's letter, I must say that, in all my experience, I never knew basswoods to bloom, and the bees not work on them. We have basswood-trees all around us, large and small, and sometimes in the golden-basswood honey-harvest time I sit in their shade and listen to the merry hum of the bees. But some years basswoods do not yield much honey, and then the hum will be louder, for the whole force will be at work, and very few returning to the hives with honey, working all day for very little pay, as some of the rest of us mortals sometimes do. I know for a certainty that some basswood-trees never produce seed. How is that? Well, very likely some trees produce pistillate and others staminate blossoms, and the bees are needed to pollinize them. Our bees always work on our strawberry-blossoms, and often very strong. Some years our bees do not work much on the buckwheat, because the second crop of red clover blooms at the same time, and often produces more honey, and the bees prefer to work on that, and I admire their good sense; but I have invariably noticed that, when the bees fail to work on buckwheat, it produces very little grain, and the same is sometimes true of alsike clover—the bees preferring to work on wild-raspberry bloom (which abounds here) and the white clover, and then we get very little alsike seed.

ILA MICHENER.

Low Banks, Ontario, Can.

#### THE HUE AND CRY.

*Mr. Root:*—You said on page 105 that you would leave it with your readers whether you would stop your hue and cry about the adulteration of honey. I would say, make all the hue and cry you can. If you did not say anything against adulteration you would be for it. I believe you must be for or against in this matter; and if you were in favor of adulteration in any form, I should not like your journal as well as I do now.

JOHN C. FREEMAN.

Cuttingsville, Vt., Feb. 9.

[We have received a good many other letters of similar import.—ED.]





But his delight is in the law of the Lord, and in his law doth he meditate day and night.—PSALM 1:2.

This is a good deal of a California number.

THE *Canadian Bee Journal* is proving to be an excellent journal, and it can not be otherwise, because Bro. Holtermann, its editor, is putting some good hard work on it.

BRO. YORK, in the *Bee Journal* for Feb. 15, joins heartily with GLEANINGS in condemning Heddon's unreasonable glucose policy. The Old Reliable is not and never was afraid to speak the truth, cut where it may.

GOOLD, SHAPLEY & MUIR Co., the leading supply-dealers in Canada, give the improved self-hiver, modeled after the Pratt, considerable prominence in their catalog. Of it they say: "Careful tests last year go to show that the self-hiver will be of great benefit." Whatever we may say of the non-swarmer, the automatic hiver in some form, we believe, has come to stay.

THE reports show, from the heavy mails we are receiving almost daily, that the bees are wintering so far remarkably well. Of course, it is not so difficult to winter bees as to spring them. But when the bees come out of the winter in good strong healthy condition they are able to stand a hard spring very much better. A year ago, it will be remembered, there were very heavy losses, even up to this time.

It seems as if we never had so great an amount of acceptable matter awaiting its turn to go into GLEANINGS as now. Some of it we would gladly use, but we are afraid it will be out of date, and lack interest, when its turn comes; we hope, also, that none of our friends will feel badly to see their communications lopped off at both ends. A suggestion:—Don't start out with any apology for writing, nor give any thing, in fact, except what will contain some information. Plunge into the subject with the fewest and choicest words you can command.

It is with much surprise and regret that we learn of the death of W. J. Ellison, of Catchall, S. C. He was one of the leading queen-breeders of the country, and in years gone by he furnished us hundreds of queens. He became a subscriber to GLEANINGS when it first started, and remained with us up to the time of his death. He was a bee-keeper of considerable note, and, while not a prolific writer, he wrote occasionally for the journals. We learn from a

local paper that he was a man of intelligence and education, and a highly respected member of the Episcopal Church. He had been sick for some time, but bore his sufferings with fortitude and resignation.

ADVICES from all quarters show that hard times are having a depressing effect on the honey market. Some of the finest honey in the world is now begging for a customer. The thousands of working-men now idle everywhere have no money to buy this most wholesome of all sweets, and it is this class of people who are the largest consumers. When the factories start up, as some of them are beginning to do, and their employes have paid their honest debts, the demand will pick up. While we do not propose to enter into a political discussion, it is patent to all that something or somebody is responsible for this state of affairs. Now, don't go and write us a long political dissertation on your theory, or that of any party, as to the causes; such things should be discussed in political papers.

WE now have in neat book form (16 large pages), as we promised, our Symposium on Bees and Fruit. We shall be glad to distribute these at the nominal price of one cent a copy; 50 copies for 40 cts.; 100 copies, 75 cts. Postage will be respectively 1, 13, and 50 cts. As a good many individual bee-keepers are ordering goods by freight and express, there will be an opportunity to get some valuable matter, free of transportation charges, at an insignificant cost. Believing also that these pamphlets will do great good in breaking down ignorant prejudice, we will send, free of charge, 100 copies to every bee-keepers', horticulturists', or fruit-growers' association in the country, provided the secretaries will ask for them and pay postage. We hope our readers, and especially bee-keepers' associations, will help on in the good work.

REGARDING the representations from the Standard Oil Co. (see p. 153), to the effect that we were using paraffine to make foundation, we have this day received a letter, under date of Feb. 17, very handsomely withdrawing the charge, and they promise to correct their Canadian agent, Mr. Schumacher. In conclusion they say: "We are more than glad to be set right in the whole matter, and to know what the facts are."

Later.—Since writing the above we have received a letter from Dadant & Son, denying most emphatically the indirect imputation that they were using paraffine in making foundation. It seems almost unnecessary, as they say, for them to make any such statement—or, in fact, any foundation-maker in good standing in this country.

We have again heard from E. L. Goold & Co. in reply to ours sending them a letter from the

Standard Oil Co., as above mentioned. They sent us a paraffine circular from the company; and among other uses of this substance they mention honey-comb. We have again written the company, sending them our \$1000 reward card; and as we believe they are laboring under a misapprehension we have every reason to believe they will strike out the objectionable line so damaging to all apianian interests.

IN "Queries and Replies," in the last *American Bee Journal*, the question is asked first, What is the correct space *between* top-bars? and, second, correct space *over* top-bars that will give the least brace and burr combs? Of the 26 who replied, nearly half say, in answer to the first question,  $\frac{1}{4}$ ; and to the second question, over three-fourths of the respondents say  $\frac{1}{4}$  inch, and one votes for  $\frac{1}{16}$ . The second question, if we are correct, was asked some three years ago, in the same department, and then the majority of writers answered, from  $\frac{3}{8}$  to  $\frac{5}{16}$ . We were among the first to advocate this smaller bee-space; and it is pleasant to see how the eminent bee-keepers are agreeing so uniformly on this same point. Only three vote for  $\frac{3}{8}$ , and three others for  $\frac{5}{16}$ . All the rest are for  $\frac{1}{4}$  inch between the top-bars and cover or super above. We shall expect, in three or four years more, that the answers to the first question as above will be generally for  $\frac{1}{4}$  inch.

FRIEND HASTY, the "reviewer" for the *Review*, has this to say of a recent charge that was laid at his door:

I see an editorial note in the *American Bee-keeper*, with the signature of "C," thinks out loud that GLEANINGS is given too much space in these papers. Perhaps I should watch out a little more to see that I don't neglect the juniors. But I'll say this much "to wunst": Nothing like an equal division of space among the journals can be tolerated. Readers want the most important new thoughts, without regard to where they come from. I suspect, moreover, that, if I were fairly tried by a jury of my peers, I should be found guilty—not of the crime charged, but of the opposite one—passing over things in GLEANINGS and A. B. J. that would have been promptly noticed had they come up in the younger journals.

Mr. Hasty is about right; and, while the juniors are pretty apt to have their cream re-dished up, it would look as if there was too much of the same yellow stuff in the two seniors for him to dish up all of it. GLEANINGS does not complain, but, on the contrary, feels honored for the prominence it has received by the "reviewer."

SINCE our editorial on page 25 was printed, regarding the old bee-books, we have received the following from Thomas Wm. Cowan:

I see in GLEANINGS, page 25, you allude to an edition of Huber included in the Naturalist's Library. Have you not made a mistake about this, as the work you allude to is, I think, by Rev. Wm. Dunbar. Is not the title, "The Naturalist's Library," with

hive and humble-bees colored on the front page, with a portrait of Huber facing it? The title-page following is thus: "The Natural History of Bees. Comprehending the uses and economical management of the British and Foreign Honey-bee; together with the known wild species," etc., illustrated with 36 plates, and a memoir of Huber. This book was written by Rev. W. Dunbar for Sir Wm. Jardine, and forms Vol. VI. of the Naturalist's Library. Sir W. Jardine knew nothing about bees, but Dunbar did; and as he was a friend of his, and was living in one of Sir W. Jardine's manses, he wrote the memoir and collected all about the wild bees. If you want to know any more about the book I shall be pleased to tell you what I know. I have nearly all the editions of the work and two copies of one or two of the editions.

THOS. WM. COWAN.

London, Eng., Jan. 20.

We find, upon investigation, that the book referred to by Mr. Cowan is similar to the one we had in review, but the two volumes must be different ones. Ours is No. 7 of the Naturalist's Library, and contains no reference to the persons named by Mr. Cowan.

#### THE MINER HIVE.

ON page 55 we asked whether any of our readers knew any thing about the Miner hive. In answer to that question, Mr. H. L. Jeffrey, of Woodbury, Ct., sends us a copy of an old bee-book entitled "The Bee-keeper's Chart," published in 1855, in New York. It was written by E. W. Phelps. Friend Jeffrey sends us the book because one of our most prominent bee-keepers denied the existence of any such work some years ago. It gives a description of the Miner equilateral cross-bar hive. Mr. Jeffrey says he has used such a hive within the past 15 years, and with very good results. It might in some respects be considered the forerunner of the Langstroth hive. On page 33 of this book the author speaks of "storifying and subtended hives." If the description of this idea was not the forerunner of the tiering-up idea it is because it is the thing itself. In some respects it foreshadows the sectional brood-chamber.

#### CONFUSION IN THE USE OF TERMS.

SOME of our best correspondents are confusing, in their writings, the words "swarm" and "colony," and oftentimes it is difficult, because of this confusion, to determine in our corrections just what term should be used. "Swarm" means a collection of bees that either are now on the wing in the air, or clustered on some limb of a tree, or have recently been hived in their new quarters. "Colony" means the same collection of bees before or some time after the swarm-act takes place; that is, it is a stock of bees that has finally assumed its normal functions. If our correspondents would be careful in their writings to make these distinctions it would sometimes save us a little trouble, because we always feel obliged to make these changes whether the writers do or not, before the articles finally appear in print. It is true,



that Webster's Unabridged and the Revised International make the same confusion; but years ago, Mr. Newman, then publisher of the *American Bee Journal*, recognized the need of more accuracy in the use of terms, or limiting the use of said terms to more specific uses. He set the ball rolling, and we believe the publishers of the better class of bee-journals have followed suit ever since. The new Standard Dictionary, that promises to eclipse the International, will have these terms correctly defined.

#### FEEDING BEES SUGAR TO HAVE THEM MAKE IT INTO HONEY.

THE absurdity of this idea is shown on page 193, for sugar in Utah costs a good deal more than honey; and, in fact, I do not believe there is a locality anywhere, where a bee-keeper can afford to feed his bees sugar. Fair crops of honey are to be had in almost every locality, and during almost every season, without feeding the bees any thing. Now, think of the expense, to say nothing about the trouble of going to work systematically to feed the bees sugar. The statements that have been in print, advising or condoning the feeding of sugar to make honey, is responsible in a large measure for this. There are plenty of real wrongs to fight, without hunting up imaginary ones.

A. I. R.

#### LANGDON NON-SWARMER A SUCCESS IN NEW ZEALAND.

IN the New Zealand *Farmer*, published at Auckland, for December, three writers in the apicultural department speak very highly of the Langdon non-swarmers. Indeed, it seems to be a success with them in every sense of the word. One of the writers, Mr. C. A. Green, summarizes the advantages thus:

1. With the use of the Langdon non-swarmers, swarming can be reduced to a minimum, if not altogether abolished.
2. The full force of workers being thrown into one hive, surplus honey can be obtained earlier in the season.
3. The first sections will be better filled than those from off single colonies, on account of the great force of workers.
4. With it bees may more easily be united, I think, without so great a danger of fighting.
5. Hives on which are non-swarmers speedily reduce the number of drones in the hive.

We have had some good reports in this country. Is it not quite possible that it was condemned just because of a few unfavorable reports? Let's not kill a good invention, one that promises so much as this, without giving the implement a fair trial. Let Bro. Taylor test the Langdon again, constructed as Mr. Langdon now recommends.

#### OUR NEW CONTRIBUTOR, MR. MATHEY.

WE would call special attention to the article on Dr. John Dzierzon, by Karl R. Mathey. It is well written, and is a just tribute to one

of the great bee-masters of the age, and our Mr. W. P. Root has made an admirable translation of it.

A good many times we Americans settle back on the idea that every good thing in apiculture originated with us; that the movable frame was fathered by Langstroth. Not wishing to detract any thing from the glory belonging to the father of American apiculture, it is but just to say that Langstroth did not bring to light, strictly speaking, the movable frame. He did invent, however, a frame that had bee-spaces between the end-bars and the ends of the hives, between the bottom-bar and the bottom of the hive, and between the top-bars and cover, or super, above. His, perhaps, was the first *practical* movable frame, but it was not the first. Making frames or racks containing comb so that the brood-frame or comb could be examined, is an invention that properly belongs to Huber. Then followed Langstroth, later on, with another great and important step; namely, putting a bee-space *clear around* the frame. Strangely enough, some bee-keepers now are giving up part of the bee-spaces, and using the frames more as first used by Berlepsch and Huber.

The old adage, "The bees stung him *smart* in his youth," while possibly old to the Germans, will, we imagine, strike the ears of an English speaker with more or less newness. Perhaps a few bee-keepers in this country have been stung *smart* in two senses of the word, and we might refer to father Langstroth and father Quinby. By the way, the Quinby idea of a frame seems in these latter days to be gaining advocates.

#### BISULPHIDE OF CARBON FOR KILLING ANTS, RATS, AND SKUNKS.

OUR readers will remember, some years ago Prof. Cook recommended the use of bisulphide of carbon to get rid of ants' nests near hives or elsewhere. The plan he recommended, if we remember correctly, was to take a crowbar, or other similar implement, and make a hole a few inches deep in the center of the nest, and then pour in an ounce of crude bisulphide of carbon, after which tamp the hole tight with a plug of earth. A gas is at once generated that will work its way through the winding passages and asphyxiate every ant.

In the last number of the *American Bee Journal*, A. C. Tyrrell tells us that the same chemical may be used to get rid of prairie-dogs, skunks, and other burrowing animals. As rats often prove to be a great nuisance in the vicinity of honey-houses, it may be well to describe the plan. A few tablespoonfuls of bisulphide of carbon are poured on to a bunch of rags or waste. It should be placed immediately in the mouth of the burrow, and the burrow at once closed. As the vapor is heavier than air it will descend to the lowest part of the burrow, and

very speedily asphyxiate the animal. Now, the beauty of the whole thing is, that the rats, or whatever the varmints are, are not only quickly killed, but are buried in a grave of their own making; and, unlike the use of poisons distributed around promiscuously, there is no smell arising from dead rats in inaccessible places under buildings and elsewhere. Mr. Tyrrell tells us that whole villages of prairie-dogs have been depopulated with the bisulphide. Not only can rats and prairie-dogs be sent to the happy burrowing-grounds by the B. Carbon Route, but skunks, ground-squirrels, and muskrats. Bisulphide of carbon costs at the drug-stores about 40 cts. a pint, and a little of it goes a good ways.

#### DISCUSSING BEE-PAPERS.

THE following appears in the last *A. B. J.*:

Discussing bee-papers at conventions is an idea mentioned in one of the January *Review's* editorials. Here is what Bro. Hutchinson thinks about it:

Bee-journals are seldom discussed at bee-conventions, there being a feeling that it is not good taste—that the commendation of one journal is a reflection upon the editors of the others. Hives, smokers, honey-knives, comb foundation of the different makes, non-swarmers, self-hivers, in short, every thing pertaining to bee culture, are freely discussed, with no consideration whatever for the feelings of the inventor or manufacturer. Where is the consistency?

Then, again, one journal may excel in one particular, another in some other direction, and bringing out these points might not be any disparagement to any journal, yet would aid bee-keepers in their choice of journals. The idea that a bee-journal, or some feature of it, must never be commended, criticised, or discussed in a convention, is more a fashion than one of good sense.

Now, here's a chance for an honest difference of opinion, and we dare say that Bro. H. stands almost alone in his view of the matter. Of course, that's all right; we stand nearly alone sometimes, but this time we think the majority are with us.

Judging from that *Review* editorial, bee-papers would be fit subjects for experiment stations to test, the same as any other bee-keeping utensil or necessity. Now, we'll suppose all of them were sent to the Michigan station to be tested. Bro. Taylor would begin the work, and he'd find that the *Review* is the only one that publishes his reports of experiments, or those that do copy them won't give what he considers proper credit; therefore the *Review* is the best bee-paper—for Bros. Taylor and Hutchinson. Certainly, no one would question that.

Brethren, we are ready at any time to have the *Bee Journal* discussed with the rest, but what good would come of it? You might as well discuss the character of John Jones, or Mrs. Grundy; but what would be gained in so doing?

When the item first appeared in the *Review*, we called to mind how unfavorably the discussion of bee-journals was received at conventions we have attended; particularly at the Keokuk meeting of the North American. The average run of bee-keepers feel that they are not competent to make suggestions regarding the editorial conduct of a bee-journal; at least, so say our readers. While they can run a bee-hive—are able to judge of its merits or demerits, and how it should be constructed, they do not feel the same "at-homeness" on the bee-

journal question. But why is the subject offensive? Perhaps because they think the desire to have journals discussed is accompanied by the desire to have some particular periodical boomed. While the same might be partially true of hives, the fact is, any one hive of merit can be made by a score of supply-dealers (if not patented); in fact, can be made by any bee-keeper possessed with mechanical talent; but there is not one bee-keeper in a thousand who can make a good bee-journal. In saying this we do not wish to be construed as believing that Bro. Hutchinson wants to boom his paper at conventions.

#### MR. HEDDON AGAIN, ON GLUCOSE ADULTERATION.

ON page 104 we criticised Mr. Heddon for certain utterances of his at the Michigan State Bee-keepers' Convention. Now that the full text of his paper, as it appears in the *American Bee Journal*, is before us, it would be no more than right to publish just exactly what he does say. It will be unnecessary to give the whole paper, but only that portion of it which we especially criticised. Here it is:

The Bee-keepers' Union was organized for defense of bee-keepers, and it did its work nobly; but last year a few believed it to be best that the Union should attack its own members with the cry of "adulteration." It would seem to me that any bee-keeper with any foresight could readily perceive that in no case could the Union, nor any other organization, nor any person, do aught but make trouble and expense, at the same time damaging the interest of honey-producers to the exact extent of their work. I believe the above would be true even if it were a fact that honey-producers were adulterating honey. If it were a fact, it would be one which we couldn't afford to have heralded to the public, as would result from public prosecution. If my neighbor bee-keeper is adulterating honey, he will very likely injure himself far more than me, for nothing does so much good, nor aids him so much in his business, as always to place upon the market a first-class article. The converse of this proposition is true. Now, if my neighbor's adulterated article doesn't injure his trade, it will not injure mine, only to the extent that his work increases the supply, and I haven't heard any bee-keeper, whether he belonged to the Union or not, endeavoring to prevent increase of supply by objecting to the encouragement of persons to go into the "bee-business."

I am not afraid of my pursuit being injured by the practice of any individual member, said practice damaging the individual first and most. But waiving this part of the argument, all the damage that has been claimed, or that can be conceived, is nothing as compared to that produced by inflating the mind of consumers with the idea that our product is generally adulterated.

[He next pays his respects to Prof. Wiley, and then adds:—Ed.]

It has been left to the envy, jealousy, and hatred of supply-dealers and their followers, to announce to the honey-consuming world that the label of "the producer is no guarantee of purity."\* This they have done by inciting arrests in isolated places; by writing letters to private individuals who would spread false reports; by writing articles in bee-papers which are being eagerly copied in newspapers, and, last, by publicly changing the constitution of the Bee-keepers' Union so that it may have the right to attempt what in no case could it have the power to accomplish, and which can and does end in nothing but casting suspicion upon our product. All the bee-keepers' unions this side of

\*If there is a dealer who "has announced to the honey-consuming world that the label of the producer is no guarantee of purity," we did not know it.—Ed.]



fairy-land couldn't stop one little honey-producer from adulterating all the honey he might be fool enough to attempt to adulterate in 300 years.

After reading the above we can not see that we have misinterpreted, on page 104, Mr. Heddon's views. Our comment on the same will be found on that page. We are sorry to take any more space; but perhaps we ought to say, in addition, that bee-keepers are not so stupid as not to be able to "read between the lines." We may say, further, that, if the change in the constitution of the Bee-keepers' Union, for the purpose of enabling that body to prosecute adulterators of honey, is both unwise, and amounts to nothing, because it is unable to cope with the evil, as Mr. Heddon tries to make us believe, *why* does he raise such a *furor* about it? Is he afraid "it is loaded" and might go off? If he isn't, then why does he prejudice our pursuit by referring to it? Again, he says, "All the Bee-keepers' Unions this side of fairy-land can not stop one little honey-producer from adulterating." We presume Mr. Heddon would be very glad to have every one believe that. That being the case, glucose-mixers could go right on unmolested, because, forsooth, nobody would touch them. To defend—that is to make it easy for glucose-mixers to pursue their business unmolested—is *almost* as bad as to adulterate itself.

We regret exceedingly the necessity and duty that compel us to criticise such utterances from a bee-keeper—heretofore one of the foremost in our ranks; but we do not see how we can conscientiously let such a thing go unchallenged.

#### SOME MORE SENSATIONAL FALSEHOODS.

THE following is a clipping that appeared in the St. Louis *Republic*, of Feb. 5th. Along with it is a cheap picture of a man dressed like a baker, handling some suspicious-looking tools with which he is making some artificial comb *by hand*, filling it with glucose, and capping the whole over. Here is the clipping:

To those who have a taste for honey on their breakfast flapjacks, it has been a constant source of wonder as to where and how the immense quantity of honey sold in grocery stores and confectioners' shops is produced. That the busy bee is not responsible for the production of the major part of it is a fact that was demonstrated before the eyes of a *Republic* reporter last week. Ordinary wax is pressed into a long flat sheet, and indented with cells, and these cells are filled with a cleverly constructed mixture of sugar, water, syrup, and glucose, with just the least touch of pure honey to give the body a flavor. In the hands of the uninitiated it would readily pass for "comb" honey, and in its appearance and flavor it so closely resembles the real article as to confuse the best of apiarists at times.

We challenge the St. Louis *Republic* to furnish the proof of its alleged bogus honey. We venture the assertion that the *Republic* reporter never saw the operation he pictures out, except in his own fertile imagination. If he

will produce the proof that artificial comb honey is made so that "in its appearance and flavor it so closely resembles the real article as to confuse the best of apiarists at times," we have \$1000 waiting for him. In fact, we have for years back, as our readers know, broadly advertised, and are not only able but willing to pay that sum to any one who will furnish us samples of bogus comb honey that can not be told from the genuine. Many and many a time we have written personal letters asking these sensational reporters to produce the proof and get their money; but we never succeeded in getting another word about it, and the reporter for the *Republic* is probably one of the same ilk. Now, unless the *Republic* can furnish the proof, before our next issue, or apologizes, it will stand before bee-keepers as one that is trying to give currency to a falsehood.

It may be well to suggest that the reporter possibly saw sheets of foundation made in a foundation-mill, and, jumping at the conclusion that these sheets would be elaborated by machinery without the help of the bee, into perfect comb, filled with glucose, and capped over, he immediately tries to flame it before the world.

One thing more. Our stenographer, who is also a printer, calls our attention to the fact that the clipping in question, with its cheap picture, is what is known as "boiler-plate matter"—that is, it emanated from a place where sensational news items are set in type, and stereotyped, and sold by the column to hundreds of papers at a cost that is insignificant. That being the case, this slander will probably go the rounds through all the American papers. This is what has given such a hold on life to this same stupid story for the last dozen years.

We do not believe in concealing cases where we *know* there is actual adulteration of extracted honey with glucose; but we do not propose to go to the other extreme, and keep still, where our industry is maligned in this fashion.

#### BAIN COME TO GRIEF.

THE notorious Bain, of Zanesville, O., and surrounding postoffices—he who pushed the black-pepsin fraud and ever so many other frauds under various aliases (see page 890, 1892)—has finally been fined \$500 and sent to prison for three years for using the U. S. mails for fraudulent purposes. I wonder if the other black-pepsin people will take warning. If they do not, they had better be sent along with Bain on the double-quick. When Bain was shut out from the mails of Zanesville he opened up again at New Concord, and at postoffices at different places as near Zanesville as he could make it without patronizing the Zanesville postoffice.

A. I. R.

#### VENDERS OF COUNTERFEIT MONEY.

EVERY little while these circulars come to us from some of our subscribers. Each one is ac-

accompanied by the usual clipping from some newspaper—that is, it is an *apparent* clipping. But the clipping is a swindle as well as the rest of it. It is to the effect that counterfeiters are getting to be so skillful that even the government experts can not tell the true from the genuine. Of course, it is all a humbug. Here is a letter that came with one of the circulars from one of the Michigan friends:

*Friend Root:*—Inclosed you will find a letter from New York concerning counterfeit money. A friend of mine here handed it to me. He did not know what to make out of it, and he did not know how that man got his name in New York until I told him how they got it. I hope none of your readers will get caught at it, because I know of a man only  $2\frac{1}{2}$  miles from here who got a small box of sawdust for his money.

HENRY WILLING.

Chesaning, Mich., Feb. 17.

Friend W., then you really have a man within only two miles and a half of you who *tried* to engage in the sale of counterfeit money. Well, he and his family may be devoutly thankful that he got only *sawdust* when he expected to get counterfeit money. Of course, the government can not get hold of them, for the men who send out these circulars do not have any counterfeit money at all. They make their living off from men who have so little of the fear of God in their hearts that they *would* engage in counterfeiting if they could; and the men who get swindled never complain, for how dare they let it be known that *they* were actually counterfeiters at heart? The remedy for this whole business is to teach all mankind that the way of the transgressor is hard. I believe, however, that the government detectives are doing all they can to ferret out and punish these men, even if they *are* only “make-believe” counterfeiters.

#### MAKING A PATENT-MEDICINE BULLETIN-BOARD OF THE FARMERS' FENCES, BARNS, ETC.

I SUPPOSE that, if a farmer agrees to the above, or sells the right to the patent-medicine man to “decorate” his place, it is all right; but it does seem to me as if the farmer might almost as well sell his good name as the right to decorate his property in this way. Here is what a recent *Rural New-Yorker* has to say in regard to the matter:

We do hate to see a farmer's barn or fence turned into a sign-board to display the merits of somebody's “bitters,” liniment, or tobacco. It does seem as though a farmer should have more pride about him than that! This nuisance is so bad in England that there is a bill before Parliament to prohibit the erection of these signs in pretty rural places.

#### THE BOY WHO HELPS ME IN PUTTING UP THE PIPES, ETC.

Mrs. Root scolded so much because I made public mention of Harold's forgetfulness, in our last issue, that I thought best to mention some things that I neglected just then and there. In the first place she says I did not sufficiently ex-

plain that Harold is only a boy, and we can not expect boys to have a man's forethought and wisdom. Secondly, he is a very bright, intelligent, and skillful boy for one of his age—so much so that I really raised his wages the very week he forgot to open the big valve; that is, there are enough good things about his work to overbalance the other to such an extent that I felt he *should* have a “raise.” Another thing, when that large pipe was set down in the clay so as to plug up the end of it, I was right on the spot at the time; and as I did not say any thing about lifting the pipe up or reaching down into the end to see that it was not plugged up with mud, I could hardly expect the men who were lifting the pipe to do so; therefore the stupidity of setting up a pipe to carry exhaust steam, while it was plugged with mud, rested mainly on the shoulders of *A. I. Root*. Still further, there is *lots* of stupidity about my work, as perhaps some of our helpers can bear witness. Yes, dear friends, I know it, and I did not mean to exalt myself while I was finding fault with others. What I mean is this: We are learning—all of us; and even though I am 54 years old I expect to be a “heap smarter” when I am 55 than I am to-day. It is not such a terrible crime to be stupid, if it is true that we are every day making progress *out of it*.

#### GOOD INVESTMENTS.

THERE are two things I feel specially happy over this morning. That automatic greenhouse across the way, with every thing inside just pushing ahead to my perfect satisfaction, is one of them. The other thing is the good substantial sound clean teeth that I am enjoying in place of the ragged, rickety, sharp-cornered things that I tried to use three months ago. Every little while I strike my teeth together with a feeling of satisfaction; and when I eat my meals I take pleasure in doing good work with a perfect set of efficient tools. I am specially pleased to see how nicely they have *gradually* adapted themselves to each other until they now strike all at once; and there is a feeling of strength and power and safety in regard to them. They can not break, because the working surfaces are of gold coin. They can not ache, because there are no holes nor hollows for food to get entangled in, and it is a pleasure for me to keep my mouth clean and sweet. I am really ashamed to think I put up with the old state of affairs as long as I did.

A. I. R.

#### A SUBSTANTIAL KIND WORD.

You may put me down as a life reader for GLEANINGS. Seven years ago I started with one colony of bees, and now I have 69 stands in good shape, and have produced \$600 worth of honey. When I commenced reading GLEANINGS I had poor health; and the more I read your paper the better health I am getting.

THOMAS OBERLITNER.

Deshler, Ohio.





Wherefore do ye spend money for that which is not bread, and your labor for that which satisfieth not?—ISA. 55:2.

The train was behind time. Just ahead of me we were to change cars, and there was only five minutes' time to make the connection. I asked the conductor if he could not telegraph ahead to have them hold the train a little, and he said he had done so. Just as we were slowing up at the depot, however, the train on the other road was just getting under motion. Had I jumped off from our own train before it was stopped, and climbed on while the other was under way, I think I could have made it; but I do not like that way of doing business; and I could hardly think that, after the train had waited so long, they would start out just as we came up. So it was, however. Somebody said the two roads were at odds and ends, and that they did things like this just to spite each other. Dear me! is it true that great railroad companies do such things *purposely*, without any regard to the trouble, expense, and disappointment they make the traveling public? I hope not; and I tried to think they had some other reason that I did not know of for refusing to wait just one minute more. There was quite a number of passengers besides myself who expected to take that train; and some of them did not hesitate to use bad language in expressing their disappointment. I thought I would try to set a better example; but when the landlord told us there would not be another train for four hours, and the four hours must come out of the middle of a bright sunshiny day, I confess I forgot myself so far as to say, "Do you mean to say we have nothing to do but to wait here four hours more?" Somebody suggested a livery rig, as we wished to go only 17 miles; but the landlord said that, in the condition the roads then were, the livery would get there but little if any before the train we were waiting for.

"I will tell you," said one of the strangers. "Have the landlord bring us a table, and you sit down here and play *pedro* with us, and the four hours will pass away so quickly you will hardly know when it is train time."

Now, may be some of you may think me dull if I tell you I did not know exactly what sort of game "*pedro*" was. I felt pretty sure, however, that it was a game of cards, and so, of course, refused. In fact, I should have refused *any* sort of game under the circumstances, unless it had been riding a wheel, skating, or some similar exercise in the open air, that would bring some substantial equivalent for the time and strength expended. The landlord promised a table, and told them he would play with them when he could spare the time; and as I looked into the men's faces, and listened to their talk, I began wondering how it was possible that smart, able, intelligent men could sit down inside of a close hot room, when the sunshine and hills, and the river and canal, and all such attractions, were to be seen outdoors. Another thing, my thoughts ran something in the line of our text. How is it possible that men should deliberately labor for that which satisfieth not? Some of you may say that, even if it did not satisfy me, it might have satisfied *them*. I do not believe it. I do not believe the satisfaction they get from *pedro* can be compared with—well, I will say with the satisfaction I felt pretty sure I should find

during the following four hours. In regard to spending money, I do not know whether they spend any on *pedro* or not. I fear they do sometimes, however. They spend strength and a part of their lives, the best part, right in the middle of the day, and right after dinner.

We had an excellent dinner, and I took pleasure in telling the despondent-looking waiter that I thought so. It lightened up her face with a smile that reminded me of the sunshine outdoors; and when I told the landlord that I felt grateful to him for giving me such a nice dinner, and so promptly that I did not waste an hour, nor was obliged to lose even five minutes, he smiled also, and said it did him lots of good to know that his patrons appreciated his efforts. Why should I be in a hurry to get to work, stranger as I was, in a strange place? How did I know, in fact, that I should *find* work or play either? Well, I knew from past experience. By the way, my friends, when you are obliged to wait for a train under similar circumstances, do not, I beg of you, yield to the temptation to say there is nothing to do, and sit down idly. If you can not do any better, you can read something. Yes, in this land of ours you can find something to read, and you can find something good in what you read, no matter where circumstances let you drop.

I did not expect to stop at Uhrichville at all, so I did not look, before starting, for old friends among the bee-keepers at this postoffice; but I think I have never been dropped in a place where I did not find *somebody* who felt glad to have me call. I asked of several people about bee-keepers, but they said they did not know of any around there. Finally I began to inquire where honey was sold. After stopping at the third grocery the keeper told me there was a man who kept a great many bees, and had kept them for years, five or six miles off over the hills. His name was Wardwell. The roads were rather bad, and there was not any other way to get there and back without going on foot—that is, no easier way; if it should happen to be six miles or a little more it would take a great part of the four hours to get there and back. But I remembered my friend Wardwell as one of our old veterans in bee culture. As I read only a limited part of the mails of late, I had somehow lost track of him. As I got off in the direction of his home, people knew more about him, and I was agreeably surprised to find it only three miles instead of twice as many. And, oh such glorious hills! It was California back again on a small scale; and between these hills were springs and babbling brooks. My heart felt light, and I was happy, long before I made the three miles. A little this side of friend Wardwell's home some men were mining coal. These hills about Uhrichville are full of coal. Now, how do you suppose they got the coal out of the mine? To save expense, the opening was not high enough to enable a man to stand upright. He had to walk stooped over; but to facilitate getting out the coal, a track was laid, and a little car ran on it that carried the load. A man might push it, but they did better than that. They had a good stout *calf* educated to pull the car. I watched him curiously as he came out of the ground right below the road where I was standing. He took it as a matter of course, marched up to the dumping-off place, and of his own accord turned off into a sort of side stall out of the way while the man dumped the coal. I afterward learned that the calf was getting to be so tall that his back scraped on the ceiling, so they were either obliged to educate another calf or raise the roof. The former would probably be the cheaper way. And just beyond I found the home of F. J. Wardwell, one of the

old veterans in bee culture, an old contributor to GLEANINGS, and he is the man who has in years past furnished us such nice queens, with the water-bottle to give them drink on their journey. When we have orders for queens long distances, we pick out the cages containing the water-bottle.

Friend W., and his wife and boy, are living on the old homestead. I for one have an especial liking for old houses. I like to see the buildings that gather around them as the years go by; I like to see the old trees, and the other things that indicate that the place has been a home for a generation or two. Sure enough, a beautiful spring poured out of the hillside right close by the dwelling, and a hydraulic ram sends the water not only into the kitchen, but out to the barns and stables, and away up into a pasture-lot on the hillside. Mrs. W. told me that, if I had not suggested the machine in my writings, they probably would not have had it. Although it does the work beautifully, it cost only \$9.00 for the machine itself. The piping and reservoirs cost a good deal more. At the other side of the house were the strawberry-beds, just such as GLEANINGS had talked about, and up on the hillside were raspberries; and I tell you it was refreshing indeed to know that all the things I have talked about and thought about had been worked out and made a success in that home amid the hills. The strawberry-patch gave them 125 bushels last season, and they were sold to a grocer for \$2.00 a bushel, right straight through. This was not a very big price, but they were all sold without any trouble or peddling, and the money for the strawberries paid the last of the mortgage that had been for years resting on the old homestead. I soon told friend W. that I was on my way to see another friend, and without much urging he consented to go with me. I knew before I reached that home, that, although bees and strawberries, and springs and other things, were interesting to friend W., there was something of more importance than all these, on which he and I could entirely agree. I knew that he and I could agree pretty nearly about spending money for that which is not bread, and laboring for that which satisfieth not.

We had some long pleasant talks on the way to Newcomerstown. Oh, yes! do you want to know what I was going there for? Well, if you will look back in GLEANINGS for last year, page 536, you will read about the man who sold \$300 worth of strawberries in three weeks; and his daughter, 14 years old, and his son, 13 years old, ran the wagon and did the selling. You see, friend W. was interested as well as myself. We found our friend Nicodemus busy steaming up and tucking up his hot-beds and new greenhouse, for a cold wave was coming. He had just moved on to a new place; and as his greenhouse had been put up almost in the depth of winter, he especially wanted to see me, because his steam-heated hot-beds were too hot where the steam went in, and too cold where it came out. Now, we have had little or no trouble on this account. With exhaust steam it takes quite a little while for the steam to get through the tiles; but when the ground gets well warmed up, the temperature seems to be pretty nearly equal, even in beds 200 or 300 feet long. He says he has been told that live steam can not well be made to do its work as well as exhaust steam. The exhaust goes in regular puffs—just so much and no more; and if let into pretty good-sized tiles, it slowly parts with its heat in a somewhat different way from what live steam does, even if it is let on very slowly. The tomato book, however, suggests a remedy; that is, to have your tiles further under ground, where the steam is just going in, and then let

them rise quite near to the surface, where the spent steam escapes near the end.

The son and daughter mentioned were both wide-awake, and fully alive to all that the father and mother were interested in. Oh how I do love to get a glimpse of such a home! and when this brother and sister sang some Sunday-school hymns for us, accompanied by a pretty little organ, it seemed to me that such a home and such a household came about as near to heaven here on earth as any thing I have ever found in this world of ours. Why, I really believe I would give more to hear those childish voices sing those hymns—those very same hymns—over again than to listen to the finest concert I ever attended. Of course, the circumstances and surroundings had something to do with it. I had talked with the children about their berry-growing, their market-wagon, and about selling stuff to their neighbors. We discussed bees, strawberries, greenhouses, steam-pipes, lettuce-plants, and all these things. I was a little afraid that these young friends of mine might become so much interested in business that there would be a tendency to neglect their education. The mother gave me a grateful look just at this time, while she said she had the same thing in mind; and then I was a little afraid, too, that this bright, pretty young girl (I hope she will excuse me when she reads this, for she knows Uncle Amos means "handsome is as handsome does")—well, to go back, I was a little afraid that, if she were to keep on selling berries at the rate of \$100 worth in a week, she would be getting into business so much for her tender years that the coarse outside world might, some of them, be a little presuming. Her brother always goes with her, it is true; but if she is going to continue in this business, if she were my child (and in one sense she is, for she is one of the GLEANINGS family) I believe I would rather have her father not very far away at least—that is, if she continues to grow in grace and wisdom.

You should have seen the look upon all around when I told them I must be off on the evening train in order to get home a little after sunrise next morning. But February is a busy month with us, and I felt that I could not be away longer.

A little of friend Nicodemus' experience may interest you. He used to be a mason by trade; but it took all he could earn to furnish food and clothing for the little family, let alone laying up any thing for the rainy day—an outlook that now probably troubles a million or more of the wage-earners of our country. He got hold of GLEANINGS, and commenced keeping bees. I wonder if he will excuse me if I say right here that he used to be a swearing man. GLEANINGS suggested something different and something better. Now not only himself but the whole household are Christians. With the bees they took up gardening, and he looked forward to the time when he could make enough with his berries and plants and vegetables to stay at home and work with his wife and children all day, and not be obliged to hunt up jobs. He bought an acre or two. God heard his prayers, and prospered him; and the children took hold of the work, as you have been told. His daughter had been teasing to plant five acres of strawberries. I said, no—at least not just yet; and I think his better judgment also said no. He knows—in fact, they all know—that worldly prosperity does not satisfy.

Some one may say right here, "Well, Bro. Root, what *does* satisfy? How shall we pay out money to get this satisfaction you talk about?" I am glad to hear that question. In the first place, you want to have a home. You want a wife and some children. And next,



you want to be *with* them. If possible, get into some employment where all of you can be partners. Have the children members of the firm. Spend your money in bringing them up in the fear of the Lord. Spend your time in laboring for that home and that little household. Have a pleasant sitting-room, nicely warmed and nicely lighted. Have some sort of musical instrument—in accordance with your means, of course, and then have home concerts. If you do not agree with me that the sound of these childish voices, united in singing praises to Him who rules over all—if you do not agree with me that these things satisfy, and are the *real substantial* bread of life, then I shall be mistaken. “*Blessed* is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners.” “*Blessed* is the man whose delight is in the law of the Lord,” and who makes it his foremost business in life to *teach* that law to the children of his household. What would be the effect on this nation of ours if every man were so doing, instead of spending his hours in playing “*pedro*,” and his money for choice brandies that he may drink all by himself, and pass them around to his fellow-travelers? “Thou hast loved righteousness and hated iniquity” is what the great God above said of Christ Jesus the Son of God. O my brother, will you not strive harder, so that, when God looks down into *your* little home, he may say of you, when he sees you with your family, “Thou hast loved righteousness and hated iniquity”? ”

In order to get an early train next morning I was obliged to be up and have breakfast some time before daylight. One of my companions of the day before was also obliged to take this early train. I do not know whether he was the very man who asked me to play *pedro* or not; but he was certainly one of that class. He was very pleasant and courteous. He even presumed to extend a dainty little glass while he held a long black bottle over it and urged me to take a drink. Said he, “I always take one before breakfast. Don’t be afraid of it, stranger—it will do you good. It is terribly cold outdoors. The landlord says it is the coldest night of the winter. You had better have it to guard against the effects of the cold.” I shook my head as I looked at him, and then my conscience began to chide me because I seemed a bit backward about showing my colors. I ventured a gentle remonstrance, and then told him my name and place of residence. He put his bottle away rather hastily, I thought. I do not know whether he felt as though he ought to apologize or not; but I heard him say, a few minutes later, “Landlord, do you know whom you have got here in your house?”

The landlord replied in some complimentary way that I need not mention here; and then my friend made some further remarks that ought to have satisfied almost any one. But I did not feel satisfied. I kept thinking of the words of our text. Why do men spend money for that which is not bread? and labor for that which satisfieth not?

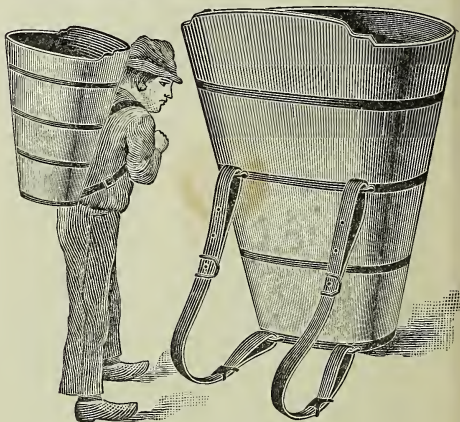
We had a very nice breakfast again, notwithstanding the earliness of the hour. And now I too felt thankful. My fellow-traveler, however, complained that he could not take any comfort so long as that baby kept crying; and even though he saw a look of pain on the mother’s face as she waited on us—it was the same face that gave me such a glimpse of sunshine at dinner the day before—even when he saw this look of pain he did not hesitate to grumble, and kept inquiring if something could not be done to *make* the baby stop crying. If the kind of drink he had just before breakfast had any thing to do with the fact that he could not be

comfortable because there was a *baby* near, it will be an additional reason to me why I never want any thing of the sort. Is it really true that a world of people are living and *dying* without having had even a *glimpse* of the bread of life or a glimpse of that which satisfies beyond any thing in the way of food and drink this *world* can furnish?



A WHEELBARROW WITHOUT WHEELS: A GARDENER’S IMPLEMENT FROM OUR GERMAN FRIENDS.

Among our German helpers is one who used to be a cooper in the old country. During a dull time last fall he made up some queer-shaped tubs, or barrels, like those used in Germany; and putting one on his back he came around to exhibit it to our German gardener. It made the faces of our German people light up with fond remembrances as soon as they got their eyes on it; for, in fact, it was a familiar object away back in Fatherland. My good helper, Ben, informed me that, in the old country, every family has such a tub, or *bütte*, as it is called in German. See the picture below. Our engraver has not shown the tub



A GERMAN BÜTTE.

sufficiently flattened, especially the one that is on the back of a sturdy gardener. Sometimes a cushion is added to make it easier where it strikes the body; and the tub is really broad enough so it strikes the shoulders, thus preventing it from swinging about while being carried with a load.

A good deal of their gardening, where land is scarce and high-priced, is done on the steep hillsides, and even up into the mountains. I have told you about some German friends of my boyhood, who used to make garden in every fence-corner, and, in fact, on every square yard around their home. Beds of flowers and vegetables were everywhere. In fact, they occupied every *foot*, leaving only narrow pathways to get through. Well, in Germany, where they garden in this way on the hillsides, they use these tubs to bring in the crops, to carry manure where teams can not go, and, in short, for all sorts of work of this kind. We have one which we use in bringing parsnips from the

field when it is too muddy to run a wheelbarrow, and we expect to use it to carry sand, manure, etc., into the greenhouses. By putting on a cover it strikes me it will be just the thing for carrying Bordeaux mixture, Paris-green solutions, etc., for spraying the crops. Attach a rubber hose to the bottom, and then put a hook on the other end, close by the sprinkler. When you want to stop sprinkling, hook the nozzle over the side of the tub, and not a bit of liquid will run out. Unhook it and hold it over the potato-vines, and there you have a knapsack sprinkler with larger capacity, perhaps, than any in the market. Should the liquid be going too fast, squeeze the rubber tube in your hand. A rather soft, pliable tube will be needed for this purpose. The only thing we lack is an agitator to keep the liquid stirred up so the chemicals will not sink to the bottom and make it too strong. Perhaps the "sloshing about" as it is carried around on the back will agitate it enough. I wish our friends Green, at the Experiment Station, would tell me about this. We have got a machine mounted on a cart, for carrying spraying-liquids, but it is tremendously hard work running the cart through our soft fine market-garden ground, and the wheels do too much mischief when the potatoes are large. I think I, like Terry, would decide on some sort of knapsack spraying-apparatus; and I am sure these German tubs, made of the proper size, will be the cheapest, nicest, and best thing we can get hold of. One of my German boys told me some time ago, when I was applying liquid manure to my strawberries, that they used that kind of stuff on all their gardens in Germany. He says further, they make the *women* carry the liquid manure around in these tubs. It seems to me that is rather a joke on the German girls, especially if they have the kind of liquid manure we use. You see, I had a manure-cistern made, and I pumped the liquid on to a manure-heap, and let it run back again. It was excellent stuff for the plants, but it was not very pleasant when the rank-smelling liquid happened to slop and fly into your face, or run down the back of your neck. Now, if these German women have any such like experience, they certainly ought to be rewarded with magnificent crops; and I sincerely hope the German *boys* are able to appreciate them—I mean the girls, not the crops.

#### A HOME-MADE HARROW.

The Ohio State University describes as follows the harrow which they use in experiments in cultivating corn:

It is made of light 2x4 in the shape of an A harrow, each side of which is 7 feet 4 inches long. Eighty 60-penny wire nails were driven in two rows around this frame, and the nails afterward bent slanting so that the harrow is drawn from one side instead of from one corner. One horse pulls this, and goes over two rows at once. This implement being light, and having long teeth, can be used with but little injury to the corn, after the ordinary could not be used. It is intended to prevent the weeds from starting, rather than to kill them after they have started.

My impression is, that the above harrow will do just as well as, or perhaps better than, many of the harrows in the market that cost a good deal more—that is, I think it will answer for mellowing the surface for shallow cultivation. They add as follows in regard to cultivating shallow:

The experiment here given, and so many others which have been made, indicate that corn should be cultivated as often as it is necessary to kill the weeds, and need not be any oftener, and should not be any deeper than is necessary to kill weeds. The best depth will usually be from one to two inches.

I confess this last troubles me; but I am very well aware that, for a series of years, the experiment station has decided there is no advantage in cultivating as often as market-gardeners usually do. I must conclude that the very light soil in the vicinity of Columbus has something to do with it. I should be very glad indeed if the experiment station at Wooster would tell us if they arrived at the same results on their poor clay soil on top of those great hills. I would not go so far as to say that it pays to cultivate after every light shower, but I feel sure that it is a benefit to stir the ground enough to break the crust after any considerable rain; and where we have these tremendous soaking rains I believe it pays to cultivate down deep, providing the plants are small and we do not go too near them. Yes, I believe that, under such circumstances, a subsoil plow would help the plants to stand a drouth that might come during the latter part of the season.

#### A NEW FORAGE-PLANT.

Like many of the rest of you, I have, for a month or two back, been reading with great interest the seed-catalogs. Whatever may be said in the way of extravagance and misrepresentation in the way of bringing out new plants, there is no question but that the seed-catalogs of our land are a wonderful means of education, and a great help in the way of comparing notes and experiences. How pleasant it is to hear or to see, rather, how others have succeeded with the new things we have been watching anxiously! Now, I have alighted upon something that fills me with such enthusiasm that there is a strong tendency to fill a page or more in regard to it. I will try, however, to hold off a little. And, by the way, I have for years decided not to recommend anything until I have first *tried* it. The Gault raspberry might be said to be an exception. It is true, I have never grown it yet myself; but I saw it growing and bearing fruit on such poor soil that it seemed almost as if there could be no mistake about it. I notice some of the papers are criticising the plant, and the editor of GLEANINGS likewise, for booming something out of his line. Very well. Suppose we let the matter drop then until I *have* myself grown it on my own grounds. If, however, some of you wish to try a plant or two, and test it for yourselves, there certainly can be no objection. Friend Gault is so near by, I propose to look over his plantation quite often during the coming season. But it is not the raspberry I wish to talk about now. Let me explain.

I told you some time ago about one of my visits through Northern Michigan. I told you of the miles of unoccupied sandy land because nothing could be made to grow on it profitably. I told you, too, that the Michigan Experiment Station at Lansing had been at work on the problem of finding some use for this vast unoccupied territory. Well, they are beginning to see daylight through the result of their researches—at least, I think they are. Let me diverge again a little.

While in Arizona two years ago this present winter I was full of enthusiasm over the alfalfa-fields that were spreading out into the sandy desert. Where people and animals would otherwise starve, these alfalfa-tracts with their beautiful luxuriant green were furnishing food and wealth for quite a population. I never saw any thing in my life in gardening or crops that pleased me as did the alfalfa-fields; and I have had a longing for something of the sort here at my own home. Friend Terry's clover-fields came pretty near it. But clover does not go down deep enough, and it is not permanent enough to suit me. I want something like al-



falfa. Alfalfa has been tested too long and too faithfully to leave any hope that it may ever prove to be a success with us, such as it is on irrigated deserts. Now for the new find:

In Maule's last catalog we find the following:

#### THE SENSATIONAL NEW FORAGE-PLANT.

*LATHYRUS SYLVESTRIS*, OR FLAT PEA.

Sold last season in London at as high as \$2.00 per ounce packet. As its nutritive value is nearly double clover and alfalfa, its value for permanent pasture can readily be estimated.

This new forage-plant has created quite a sensation at home and abroad for the last year or two, and has attracted the attention of distinguished agriculturists the world over. If the claims made for it are only half true, it is the most valuable acquisition to forage-plants ever discovered. Some of its points of excellence may be mentioned as follows: Its roots penetrate the soil 30 feet, which enables it to withstand great extremes of cold and drouth. It has double the feeding value of alfalfa, a crop richer than red clover. Its feeding ratio is 1 to 4.5, which is richer than oats, with a ratio of 1 to 6.5. It is richer than the balanced ratios for fattening cattle, and is rich enough for fattening either hogs or sheep without any grain. It will last 50 years without manure and without re-seeding. It will draw double the nitrogen from the air that alfalfa or clover does, hence it is the most valuable plant known for renovating worn-out soils. It will cut 8 tons of hay per acre in a season. When established, a field of it will fatten hogs, without any corn. Its growth is slow the first two years. The plants grow very little above the ground the first year, but the roots make rapid growth. The second year the top thickens up, and the third year the plant is matured. The seed requires several weeks to germinate.

**CULTURE.**—Prepare a piece of clean ground by deep plowing and thoroughly working. Plant the seed any time during the first summer months. Either drill or scatter by the hand in drills 12 to 15 inches apart. One plant to the square foot is sufficient when established, hence the seeding is light. Keep the weeds down the first year.

Well, what of it? Although Maule has given us many good things, and although he is a pretty straight man for a seedsman (I wonder if I ought not to beg pardon of the good friends who issue seed-catalogs, for that speech)—well, making due allowance for an enterprising seedsman who thinks he has got something that will do to boom, let us look at it a little. And, by the way, right after the above statement he published a letter from the Michigan Agricultural College. We all know these men have no interest in selling seeds. I hope there is not money enough in the United States to bribe any one of the professors of our agricultural colleges to help a seedsman or anybody else to boom a thing unless it deserves it. I read that letter from the Michigan station, and I could not help believing that Maule *had* got hold of something really valuable. Perhaps saying the roots go down 30 feet is a little strong. May be we had better knock off a half or a third. I should have lots of enthusiasm, even then. I at once wrote to the Agricultural College at Lansing, asking a lot of questions. Below is their reply:

In reply to your favor of Jan. 26, regarding *Lathyrus sylvestris*, I would say that I have no doubt that it will succeed in Ohio or almost anywhere, as it seems to endure cold and severe freezing, as also dry weather. It is quite slow to start, and makes very light growth the first year. Here on the college farm the seed was sown in drills 30 inches apart, and was cultivated, and even hand-hoed the first year; but the second year it grew enormously. It was not tested for forage except to try a few forkfuls in a green state, which cattle seemed to like—at least, they ate it readily. We saved all the

crop for seed, but it got too dry, and it is very difficult to secure under any circumstances. We saved about 25 lbs. only, from the acre plot. This, of course, would be a very good crop at the rate per pound you quote. We have none to sell. Ours cost \$5.00 per lb. when purchased. We sowed the seed in early spring; sowed some last fall to see how it would come.

I do not know of any other trials, although I think there have been a few on small plots. It will be tested for forage this season by feeding to stock. In Bulletin 101, which I send you, it will be seen that it shows high feeding quality by chemical analysis. It may not do as well when the cattle analyze it. It came from Germany or Austria, and is said to be a wild plant, improved by cultivation. Why it has not been "brought out" before, I do not know. It grows well enough outside after it gets started, and the transplanting is rather slow work. The seed comes up better if soaked in warm water several hours. I. H. BUTTERFIELD, Sec'y.

Agricultural College, Mich., Jan. 31.

The bulletins referred to in the above contain a large amount of valuable matter in regard to the plant. I read it very much as I first read the story of Robinson Crusoe—yes, just about as I read "Langstroth on the Hive and Honey-bee" 25 years ago. Oh how I do enjoy hunting up and finding out all about these wonderful new gifts—new to us at least—that God has in mercy, kindness, and love, provided for us! I presume you can get the above bulletin by sending to Lansing. Please put in some stamps, however, for I understand they are getting many questions in regard to the new plant. I confess I can hardly resist the temptation to use space for quotations from the bulletin. A kind letter from W. J. Green, of the Ohio Experiment Station, bids me hold on a little and wait until I am sure I am right; and I do not know of a wiser man to advise in such matters, in the whole wide world, than my good friend Green. Here is his letter:

**Mr. Root:**—We have had no experience with *Lathyrus sylvestris*. It has been tested to a limited extent by the Massachusetts, Colorado, Florida, and Michigan stations, but none of them have gone so far as to recommend it unqualifiedly in their reports. Analysis shows that it has a high feeding value, and after it gets once established it produces heavy crops; but it has the very serious drawback of being slow in starting, nor can it be harvested for hay with any machinery that we now have. I doubt very much whether it can find a place in our system of agriculture; but this is only an opinion. Farmers are averse to sowing beets, carrots, or any thing else, that requires much attention to get the young plants started, and I think that one trial of *Lathyrus* will be enough for most farmers. The first trial at Michigan was a failure because the weeds came up first and overran the young plants; but they obviated this difficulty the next season by sowing turnip seed in the rows. I think it ought to be recommended only in an experimental way. It will need several years of trial to determine its value. We shall probably give it a trial next season. W. J. GREEN.

Wooster, O., Jan. 30.

All who feel interested as I do can start some seeds right away—a five-cent package, if nothing more. Thorburn offers the seed at 30 cts. an ounce, or \$3.00 per lb. If you want only a five-cent packet you had better order it of us, as no other seedsman puts up so small a quantity, that I know of. We can also furnish an ounce at 30 cts. if you wish, or 1 lb. for \$3.00, postpaid.

He suggests that it takes a good while to get a good perfect stand. Never mind if it does, if it is true that it will stand 50 years, or even half that, after it is once started. I think I could afford to grow plants, exactly as we do cabbage-plants, enough to cover a good many acres, if I were sure it would stand so many years, and go down so deep that it would not require manure or cultivation or any thing else. He also suggests that there is at present no agricultural machinery known, capable of harvesting the crop, especially in the tangled-up way in which it grows. Well, even if this is true, will not the plant be of sufficient importance to warrant making machinery that will cut it? We do not know whether it yields honey or not; but if I am correct it furnishes a great amount of bloom and quite a quantity of seed.

#### MUSHROOMS—THE NEW KIND—*AGARICUS SUBRUFESCENS*.

So many complained that the mushroom spawn did not grow last year. I took it out of our catalog; but as orders kept coming, we have thought best to put it back again. Another reason why we decided to put it back is this: Mushrooms have been coming up all through our greenhouses, especially in ground that is heated by steam; and the perplexing thing is, it comes up in places where I did not know any earth had ever been taken to, from the mushroom-beds. As fast as they appear we have sold them readily at 40 cts. per lb.; and sometimes a very small patch of ground gives us quite a little money, most unexpectedly. Another thing, a beautiful white mushroom—white on top and white underneath—came up among the others. I should have called it a toadstool, but the stem was so thick and fleshy it made me think it must be good to eat. I directed Mrs. Root to cook a dish of them for me alone. Of course, there were loud remonstrances from all the family; but remembering some experiences given on previous pages I took just half a spoonful; at the next meal a whole spoonful; then three or four, and finally I ate

the whole of them. And now you see I have got a new edible mushroom. I am inclined to think it comes up quicker than the mushroom of commerce; but unless cooked when very young I imagine they are a little tougher. But they are so clean and white they look almost like new-laid eggs.

*Later.*—Since the above was written I find, by an American *Florist* of recent date, that I have actually got the new mushroom that so much has been said about in the East—the (*Agaricus subrufescens*, Peck). In fact, the spawn has been sold, and is selling, for aught I know, at \$5.00 per lb. I am not sufficiently well posted to undertake to sell spawn, even if I wanted to; but others may find this new mushroom in their beds. I believe it requires rather more heat than the old-fashioned kind, and they grow in clumps, three or more being attached together at the stems. They come up so quickly that you are surprised in seeing good-sized mushrooms where nothing was noticed just the day before.

How did I come to have this new mushroom, do you ask? Well, my opinion is that the new mushroom is probably scattered all over our land; and when the conditions are right, very rich soil and sufficient bottom heat, I think it will make its appearance. Very likely it has already made its appearance thousands of times, and been called toadstool. In fact, in trying to put it on the market everybody calls it a toadstool now. But you can, any of you, test it as I did; in fact, all the edible mushrooms throughout our land can be easily sorted out by using a little care in the way I have described. There is not a bit of need of anybody being poisoned if he eats very sparingly of any new variety that shows itself, until he has settled the fact that it is wholesome. My digestion is very easily disturbed; but mushrooms never give me the least bit of trouble—at least, none that I have tried so far. Perhaps I might explain that the botanical name of the old mushroom sold in the market is *Agaricus campestris*.

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- Set B—16 pkts. Vegetable Seeds. - 50c
  - " E—20 pkts. Flower Seeds. - 50c
  - " F—10 Lovely Carnation Pinks. 50c
  - " G—10 Prize Chrysanthemums. 50c
  - " H—4 Superb French Cannas. 50c
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No two plants alike in these sets.

Any 3 Sets, \$1.25; 5 for \$2.

By mail, postpaid. Safe arrival and satisfaction guaranteed. Order by the letters from this advt. NOW as these are introductory sets not in catalogue, an elegant annual of 168 pages, free. Everything of the best for Orchard, Vineyard, Lawn and Garden. 40th year, 1,000 acres, 28 greenhouses.

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Yellow Jersey (best variety), extra select, bbl., \$3.00.  
" " " " second size, " \$2.50.  
Extra Early Carolina, similar to above, " \$3.00.  
Southern Queen, Red Bermuda (Yam), early, good for heavy soils, \$1.50 per bushel. Order now, and secure good seed at reasonable prices. Discount on 5 and 10 barrel lots. Address  
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It is unlike other Catalogs. Straightforward and truthful descriptions by a practical market-gardener, of the best in SEEDS. Tells about growing \$2000 worth of Prize-taker Onions on an acre, and how to grow \$3000 worth of Celery on an acre. We sell Vegetable Plants, Timbrell and other leading Strawberries and Small Fruits. Trees and Supplies for gardeners. Danvers Yellow Globe Onion Seed at \$1 per lb. True Prize-taker, \$2.25. We send a pkt. of this and of a new Early Tomato, smooth, good shape and size, and the earliest, also a pkt. of new Sensation Lettuce, with Catalog and several useful leaflets, for only 10c. Send now.  
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### Southern Bee-keepers,

Do you know that, freight considered, we can furnish you with supplies at a less cost than any house in this country? Freight rates from New York to Jacksonville, Fla., only 35 cts. per 100 lbs. Our circular free upon application.

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Burpee's Seed Annual for 1894 is well worth having. Tell to all who plant seeds.  
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**IN THE FIELD. | GOLDEN QUEENS, NUCLEI.**  
**CIRCULAR FREE.**

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THREE BAND.



FIVE BAND.

*Five Band.*—What is the matter, sister? Why don't you come out?

*Three Band.*—Oh! I see so much talk about you yellow beauties I am afraid I am going to be stamped out.

*Five Band.*—No, no! Jennie Atchley says we are sisters, and that she has tested us both for honey, and finds no difference; and she tells us to get down side by side, and let the people choose for themselves.



THREE BAND.



FIVE BAND.

Three and five bands, raised in separate yards, untested, \$1.00 each; \$5.00 for 6, or \$9.00 per dozen, March, April, and May; June and after, 75c each; \$4.25 for 6, or \$8.00 per dozen. Safe arrival and satisfaction guaranteed. Fine breeder, \$5.00. Catalogue free. Let me book your orders.

*Jennie Atchley, Beeville, Bee Co., Tex.*

In responding to this advertisement mention GLEANINGS.

**MUTH'S HONEY EXTRACTOR.**

Square Glass Honey-Jars,  
 Tin Buckets, Bee-hives,  
 Honey Sections, Etc., Etc.  
 Perfection Cold-blast Smokers.

APPLY TO

**CHAS. F. MUTH & SON, Cincinnati, O.**

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."



Seeds

Free!

ALSO  
 Freeman  
 Potatoes.

**YOU CAN HAVE SUCCESS**

in Bee Culture a Whole Year; 10 strong eyes of Freeman Potatoes (pure), and 10 packets of flower and vegetable seeds, for 40 CENTS, silver. This offer is made to boom our circulation.

**BURTON L. SAGE, Highwood, Conn.**

In responding to this advertisement mention GLEANINGS.

**Apiary for Sale**

In Hardin Co., Iowa. Plenty of basswood and white clover. Every thing needed in the business must be sold. If you want a bargain, write quick.

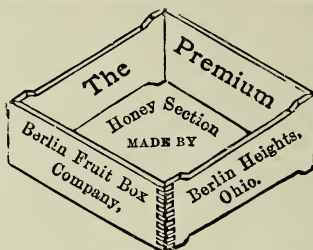
**J. E. HAND, Selma, Cal.**

**EGGS FOR HATCHING**

All A No. 1 stock.

Buff Leghorns, \$1.50 for 15; Buff Wyandottes, \$2.00 for 13; White Plymouth Rocks, \$1.50 for 15; White Pekin Ducks, \$1.00 for 9.

**J. S. WARNEB, Medina, O.**



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address

**BERLIN FRUIT BOX CO.,**  
 Berlin Heights, Ohio.  
 1-10d

**Automatic Comb Foundation Mills.**

Made by  
**W. C. Pelham,**  
 Maysville, - Ky.

**BBB'S!**

If you keep **BEES**, subscribe for the **Progressive Bee-keeper**, a journal devoted to Bees, Honey, and kindred industries. **50 cts. per year.** Sample copy,

also a beautifully illustrated catalogue of Bee-keepers' supplies, **FREE.** Address

**LEAHY MFG. CO., HIGGINSVILLE, MO.**

In responding to this advertisement mention GLEANINGS.

I will send post-paid for \$1.00, For \$2.00 I will send —30 in all—no two alike. **S. LENTON,**  
 Piru City, Ventura Co., Cal.

**APPLES,** Ben Davis, Ark. Black, Mammoth Black Twigs, all varieties. Whole root only. Premium World's Fair. Trees, 10c each. On orders of 100 I pay the freight. **W. H. LAWS, Lavaca, Ark.**  
 Please mention this paper. 47b

**GEO. W. HUFSTEDLER,**

Breeder of 5-Banded Italian Bees and Queens.

Untested, 75 cts. Tested, \$1.00 each.

**CLARKSVILLE, RED RIVER CO., TEXAS.**

**PATENT WIRED COMB FOUNDATION**

Has No Sag in Brood-frames.

*Thin Flat-Bottom Foundation*

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

**J. VAN DEUSEN & SONS,**

12tfdb Sole Manufacturers,  
 Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

**Queens?**

Catalogue free.

Yes, either 3 or 5 banded bees; Queens and supplies. Pure-bred Poultry cheap.

**CHAS. H. THIES,**  
 Steeleville, Ill.

**TAKE NOTICE!**

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & KEITH,**  
 8tfdb New London, Wis.

**\$5.50 For 3,** or \$10.00 for 6, Finest or Plymouth Rocks. Other varieties. Circular free. Address **GEER BROS., St. Marys, Mo.,** or **H. B. GEER, Nashville, Tenn.** 5tfdb



#### STRAWBERRIES IN FEBRUARY.

We have had one ripe one, anyhow, and another is turning red, and there are quite a number of green ones. They are in the plant-beds over the exhaust-steam-pipe that runs from the factory to the house.

#### LATHYRIS SYLVESTRIS, OR FLAT PEA—PRICES ADVANCED.

Since what I wrote on page 204 in regard to this plant the price of the seed has advanced to \$4.00 per lb., instead of \$3.00. Ounce prices will remain 30 cts. until further notice.

#### LOW-PRICED ONION SEED.

That mentioned last month, on page 164, at \$1.00 per lb., delivered at your postoffice, germinates beautifully. It is now up nice and green, with a good full stand. Prizetaker onion seed, until further orders, only \$2.25 per lb., instead of \$3.00, as in our price list.

#### MUSHROOM SPAWN, THE OLD KIND—AGARICUS CAMPESTRIS.

I have bought 100 lbs. of Peter Henderson. You remember our Experiment Station said his gave the best results, under the same treatment. We can furnish it, single pound, 15 cts.; 5 or more lbs., 12 cts.; 10 lbs. or more, 10 cts. per lb. If wanted by mail, add 10 cts. per lb. for postage and packing.

#### OUR NEW HOT-BED SASH.

We are having a tremendous trade on hot-bed sash. And, by the way, we are now prepared to furnish glass to match 8x10, for only \$2.00 per box. Somebody asks if 8x16 will answer just as well. Yes, even better, because there are fewer joints. The glass we offer is single strength, and we think this heavy enough for small-sized lights. Large-sized lights would be preferable, but both sash and glass are in more danger of breakage. We are using both kinds.

#### POTATOES FOR SEED THAT ARE NOT QUITE RIPE.

Doubtless some of our readers have seen the articles going the rounds in regard to saving potatoes for seed from a second crop that ripens just before frost, or, better still, that does not quite ripen. Please notice that our friend Wilbur Fenn, spoken of in the potato-book, has already been working on this line; and the carload of Monroe Seedlings that we offer for sale at \$3.00 per barrel are of this very "persuasion." In fact, some of the hills were killed by the frost before they were entirely ripe; and the whole carload was placed in the cellar, as you may remember, when the thermometer registered only 17° above zero. They are as sound and perfect this first day of March as they were the day they were dug; and the cellar has been kept shut up as tight and dark as an ink-bottle.

#### FREEMAN POTATOES.

While at friend Nicodemus' I happened to look out of the window and saw a nice shaped mound of earth out in the garden, covered with snow. "That mound," said he, "covers my Freeman potatoes." By the way, some of the agricultural papers are saying that the Freeman is not a good yielder. I wish those who grew them last year would tell me briefly what they think about it. One thing I know—everybody seems to be after them, and our stock is just now dwindling away rapidly. By the way, there is a mistake in our price list in the price of Freemans by the peck. It says, "Peck, \$1.00; bush., \$2.00." That was another of A. I. Root's blunders. It should be, one peck, first quality, 75 cts. The reason why we have to charge more in proportion for small quantities is, that some sort of box or package must be provided for every shipment of potatoes, and it costs almost as much to put up a peck to send off as it does a bushel.

#### WIRE NETTING AND FENCING.

We call the attention of our readers to our wire-netting announcement, inside of last cover; also of

short rolls in another column. These goods have never been as cheap as they are this season, and you notice we allow the freight on 200-lb. shipments from Connecticut, to the amount of 40c per 100 lbs., if it comes to that or more. See conditions in the ad't elsewhere.

#### CLUBBING RATES WITH POULTRY-JOURNALS.

We have calls from many of our readers for clubbing rates with poultry-journals. We have only one in our regular clubbing list; but when that is made up again it will include others. Until then we offer GLEANINGS one year with The Poultry World, monthly, reg. price \$1.25, for \$1.90 Amer. " Journal, " " 1.00, " 1.90

#### HONEY, COMB AND EXTRACTED.

We are prepared to furnish a very choice article of comb honey, lots of 100 lbs. or more, at 14 cts. per lb.; fair, at 12 cts. Choice extracted clover and basswood, in 200-lb. kegs, at 7½c; in 60-lb. cans, 2 in a case, at 8c. Choice white sage, in 60-lb. cans, 2 in a case, at 7½c. We can have the sage shipped from Chicago, when preferred, at same price, and we can ship other extracted honey from several points east or west when preferred, at same price. Unless otherwise ordered, shipments will be made from here.

#### STICKENFAST MUCILAGE.

We have at last got a preparation that will stick labels to tin, and keep them stuck indefinitely. Most preparations heretofore would seem to stick them all right, but after a little they would pop off. There is one great drawback to this. It comes in dry or granular form, and must be prepared for every two or three days' use, as it will not keep longer than three or four days and do its work. If prepared and applied fresh, according to directions, it will stick labels securely to tin or wood, and hold them. When used to stick two papers together they do not become hard, and crack, as with other mucilage, but remain pliable.

An ounce of the dry powder makes a pint of mucilage, which will stick a good many labels. Price of Stickenfast, including full directions for preparation, 1 oz., 15 cts.; 2 oz., 25 cts.; 1 lb., \$1.25. Sent postpaid at these prices.

#### SECOND-HAND MACHINERY.

We still have on hand quite a line of second-hand machinery. If any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with every thing you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new \$400; will sell for \$175, or with new boiler for \$375.

Two four-piece section-machines, as good as new; they cost new, \$45 each; we will sell them for \$25 each.

A lot of ripping-tables with heavy mandrel, and screw and chain attachment, such as we used for sawing sections in the old way; worth \$25; will sell at \$17.50 each, including 1 rip-saw.

#### SECOND-HAND FOUNDATION-MILLS.

We offer at special low prices the following list of second-hand foundation-mills which have accumulated on our hands during the past few months. If any desire a sample of foundation made on these mills before ordering, we shall be pleased to mail it on request stating the kind or number of mill that you want.

One 6-inch hex., No. R; price \$10.00. This mill is in good condition, and just right for surplus foundation 9 to 10 feet to the pound.

One 6-inch hex., No. Y; price \$10.75. This is a good mill, suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. A A; price \$10.00. This is in good condition, and suitable for surplus foundation 10 feet to the pound.

One 6-inch hex., No. 1461; price \$9.00. This is in fair condition, and will make foundation 10 feet to the pound.

All the above have the latest style of frames; the following are old style:



One 10-inch round cell, heavy, No. W; price \$10.00. This is suited for only heavy foundation, and will answer nicely for that purpose.

One 9-inch Dunham, round cell, heavy; price \$8.00. This mtl is in fine condition, and is suited for heavy foundation only.

One 10-inch Pelham, almost new, and of the latest pattern, for heavy brood foundation only. Will sell for \$9.00.

#### EXTRA POLISHED SECTIONS.

These are admired on all sides, and we have received many kind expressions from those who have examined samples. Here are a few of them: Geo. E. Hilton, Fremont, Mich., writes, "Your sample of sections, and price, at hand, and I inclose an order for 50,000, and hope to duplicate later. The samples are superb."

Chas. L. Hill, of Dennison, O., writes: "Your samples of sections, and price lists, received. We are favorably impressed with the workmanship of those extra polished sections, and can say you will surely have an immense sale if all go out according to samples, in quality." An old customer in St. Louis, Mo., writes, "The sample inclosed is certainly a fine piece of work, and, should we need any in future, will bear that in mind."

We might multiply these kind words, but these samples will show the drift of opinion regarding these goods. We are now supplying a number of dealers who have heretofore handled other makes. Though the orders are taking our output nearly as fast as made, we are prepared to handle more. We have also insured against running short of lumber. We have gone to an expense of about \$200 in remodeling our drying-apparatus. The weather being most favorable, we have laid in the largest stock of the choicest white basswood it has ever been our good fortune to have at one time. We are, therefore, prepared for all demands. We meet competition in price, and surpass it in quality; if in need, therefore, let us hear from you.

#### CIRCULARS RECEIVED.

We have recently received price lists from dealers in apiarian supplies, etc., as follows:

J. J. Bradner, Marion, Ind.  
E. T. Abbott, St. Joseph, Mo.  
Whitford Bros., Arlington, Neb.  
J. W. B. tenbender, Knoxville, Ia.  
J. D. Goodrich, East Hardwick, Vt.  
L. L. Price, Odell, Mo. Ferguson hive.  
J. B. Case, Port Orange, Fla. Queens only.  
E. T. Falconer, Belleville, St. Clair Co., Ill.  
W. T. Falconer Manufacturing Co., Jamestown, N. Y.  
The following were printed in our job rooms:  
H. M. Orr, Selma, Cal.  
F. H. Dunn, Yorkville, Ill.  
Cole & Lowers, Latona, Wash.  
L. H. Hunt, Red Branch, Mich.  
N. D. West Middleburgh, N. Y.  
J. B. Ma-on, Mechantie Falls, Me.  
John Nebel & Son, High Hill, Mo.  
Walter Fowler, Indianapolis, Ind.  
J. M. Jenkins Wetumpka, Ala. Second edition.

#### CONVENTION NOTICES.

The Southwestern Wisconsin Bee keepers' convention will be held at Boscebel Grnt Co., Wis., at the City Hall, on Thursday and Friday, March 15 and 16, 1894. All topics relative to apiculture will be discussed, and papers are solicited. There will be a question-box.

A. A. ARMS, Sec., Hurlbut, Wis.

**The Triumph Incubator,**  
Manufactured by Ed. W. Cole, Kenton, O., is the cheapest and best. Eggs for hatching, from stock which won nearly 300 premiums the past year.  
**Send for Description and prices.**

#### "TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my *Golden Italians*. They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. **Sections, \$2. per M.** Dovetailed hives way down.

CHAS. D. DUVALL, Spencerville, Md.  
Please mention this paper.

**Queens, } Send for Price List.  
Nuclei, } Address  
Colonies } S. D. McLEAN,  
Columbia, Tenn.**

#### OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**  
1-230 Ottumwa, Ia. South side.

#### WIRE NETTING.

SHORT ODD-LENGTH ROLLS OF WIRE NETTING, AT FULL ROLL PRICES OR LESS.

We have the following lot of wire netting of various sizes and widths in short or odd-length rolls. Very often a person wants a piece and can not buy it cut from a full roll without paying double price. You may be able to find in this list just what you need, or very near it. Even if you want more than a full roll you will find the prices at which we offer these pieces to be in most cases less than full-roll price.

If any can use light 3-inch-mesh netting, 5 and 6 feet wide, we have a few rolls that we will close out as follows:

8 rolls 3 in., No. 19, 72 in. wide, 150 ft. long, at \$3.25

Of 2-inch mesh No. 19 wire, we have the following remnants and short rolls at  $\frac{1}{2}$  c per square foot. The figures at the left give the width in inches, and the other figures give the length of each piece in feet. Multiply this by the width in feet, then take three-fifths of the result to find the price of each piece.

30 145, 60, 64, 70, 91, 95, 107, 123, 140, 144, 146.  
36 9, 18, 19, 26, 38, 40, 40, 49, 50, 50, 50, 53, 54, 55, 58, 60, 64, 73.  
74, 82, 83, 84, 87, 90, 90, 92, 91, 96, 96, 99, 115, 100, 100, 100, 100, 102, 102, 102, 102, 105, 105, 110, 110, 111, 114, 60, 116, 118, 120, 120, 122, 124, 124, 125, 125, 128, 129, 138, 141, 141, 147.  
42 85, 131.  
48 32, 35, 38, 40, 55, 67, 68, 75, 75, 82, 83, 83, 84, 86, 87, 90, 94, 96, 119, 122, 123, 123, 124, 138, 138, 140, 143, 144, 144, 145, 145, 145, 146.  
54 72, 88, 88, 145.  
60 144, 101, 101, 103, 105, 107, 110, 120, 124, 144.  
72 20, 42, 47, 48, 73, 82, 85, 85, 88, 100, 100, 112, 119, 120, 123, 124, 142, 148.

Of 2-inch No. 20 we have the following pieces at one-half of a cent per square foot. Arrive at the price in precisely the same way as above, taking one-half of the number of feet instead of three-fifths, to get the price in cents.

30 140, 140, 140.  
36 35, 36, 38, 39, 79, 81, 88, 100, 100, 119, 120, 122, 126, 128, 134, 136, 138, 140, 144, 145.  
54 145.  
60 20, 129.  
72 38, 44, 45, 70, 75, 76, 79, 100, 100, 128, 137, 139.

In the following list we give first the size of mesh; next, the number of wire; next, the width in inches; then, the length in feet; and, finally, the price of the whole piece, so you will have no figuring to do.

1 $\frac{1}{2}$  in. No. 19, 34 in x 126 ft. at \$4.25.  
1 $\frac{1}{2}$  in. No. 19, 48 in x 78 ft. at 3.50.  
1 $\frac{1}{2}$  in. No. 18, 48 in x 80 ft. at 4.20.  
1 $\frac{1}{2}$  in. No. 16, 30 in x 70 ft. at 3.15.  
1 $\frac{1}{2}$  in. No. 16, 49 in x 34 ft. at 2.10.  
1 $\frac{1}{2}$  in. No. 16, 48 in x 92 ft. at 6.50.  
2 in. No. 15, 18 in x 73 ft. at 1.65; x 87 ft., at \$2.00.  
2 in. No. 15, 18 in x 30 ft., at 70; x 55 ft., at \$1.35.  
2 in. No. 15, 12 in x 100 ft. at 1.50.  
2 in. No. 15, 48 in x 8 ft. at .50.  
2 in. No. 15, 54 in x 122 ft. at 8.50.  
2 in. No. 15, 60 in x 20 ft. at 7.50.  
2 in. No. 15, 60 in x 21 ft. at 1.60.  
2 in. No. 15, 72 in x 33 ft. at 3.00.  
2 in. No. 15, 72 in x 38 ft. at 6.20.  
2 in. No. 16, 12 in x 78 ft. at .85.  
2 in. No. 16, 18 in x 13 ft. at .20.  
2 in. No. 16, 30 in x 24 ft. at .65.  
2 in. No. 16, 72 in x 58 ft. at 3.50.  
3 in. No. 16, 24 in x 19 ft. at .35.  
3 in. No. 15, 36 in x 14 ft. at .45.  
3 in. No. 14, 48 in x 15 ft. at .90.  
3 in. No. 14, 72 in x 70 ft. at .20.  
3 in. No. 14, 72 in x 100 ft. at 8.50.

We have, besides, a lot of pieces of web fencing, 4 and 8 inch mesh, that we will close out below cost. Those interested please write for particulars.

In lots of 5 pieces, any one or assorted kinds, deduct 5%; 10 pieces, 10%; 25 pieces or more, 15%. On the 72 inch netting you may also deduct 10% on single-piece orders; or, in addition to above, on quantity orders. First come, first served. Generally these pieces go off very rapidly, and it may be well to name a second or third choice in case your first may be gone.

A. I. RHOOT, Medina, Ohio.